THE
ELEMENTS
OF
ARITHMETIC

ELLA M. PIERCE

SILVER, BURDETT AND COMPANY

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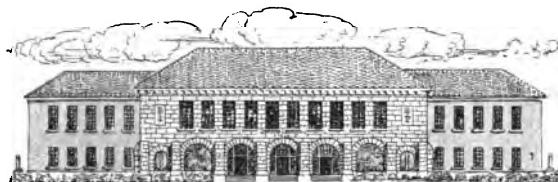
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The

Elements of Arithmetic

BY

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SUGGESTIONS TO TEACHERS.

THIS book is intended for the use of children of the third school year, and covers the fundamental facts and processes through numbers to one hundred. It presupposes a knowledge of all number facts to twenty, but in the presentation of higher work dependent upon them, these facts are all recalled and opportunity given to fix those of which the pupils are not yet certain.

The development of the principle of addition and subtraction by endings is different from either of the two usual ways, but, by a careful selection of the facts, a larger number of them may be used at once to illustrate the principle, thus making it clearer. The whole thirty-six combinations making numbers to nine are reviewed at once, and the principle of adding by endings applied to numbers up to one hundred. This application is easy, since those number facts upon which it depends are the simplest, and in the application no result goes into the next ten above. The principle of subtraction by endings is applied to one hundred in the same way as to the corresponding subtraction facts through nine.

The remaining forty-five facts in addition, and the corresponding ones in subtraction are more difficult, and need more practice in themselves before being made the basis of higher work, as an assured knowledge of fundamental facts is the only surety of a correct method of obtaining the higher ones. Besides being more difficult in themselves, whenever used as the basis of application of the principle of addition, they carry the result into the next higher or lower ten, increasing the difficulty to the pupil, and calling for more practice in the application, as well as a thorough knowledge of the fundamental facts. These are, therefore, divided on the basis of their endings, those making ten being reviewed first, and the addition principle being applied to one hundred, then eleven, and so on.

The examples which follow each division of the work in addition and subtraction are very carefully arranged to afford drill upon the last work developed and to review all previous work.

The attention of teachers is especially called to the value of the exercises in which the pupils are directed to add a column, then to add the same again, supplying a figure in the tens' place to the lowest number, then again changing the figure supplied. The recurrence of the same figure in the units' column, and the practice in thinking a different one in the tens', results in emphasizing the principle of addition by endings, as no other exercise does.

The work in multiplication and division is preceded by a section on fractional parts, designed to teach the meaning of fractional terms, and the relation of simple

fractional parts to each other. These fundamental ideas are applied throughout the work in multiplication and division, in the relation of both numbers and quantities to each other.

Throughout the book great care has been taken to appeal to the understanding of the pupils so that the drills may furnish practice in application of principles rather than a mere recitation of facts. No attempt has been made to give a concrete basis to the *facts* in addition and subtraction, it being supposed that this has been done previously, and the stage reached where, in a mere mechanical process, the thinking is done in figures. In the *application* of the facts, however, to problems, great pains should be taken to lead the pupils to think concretely, to picture conditions, and to see the relation of quantities, in order to select the corresponding number facts or processes. The necessity for this concrete thinking is the basis of the great value of long, square, dry, and liquid measures for the application of number facts and relations. Instead of being so much more to be learned, they are so many helps to learning, so many more vehicles for the same thought.

In the development of new work which should have a concrete basis, the pupils should have an opportunity to see and examine the materials themselves, and, by doing whatever is necessary, to discover their relations, instead of learning them from the teacher or from books.

New terms should be given by the teacher after the idea that they represent is well presented, and they should then be used freely for some time before any definition of them is required. The apprehension of the meaning and of the use of words precedes by a long time the power to define them. For the same reason, no formal explanation of problems should be required in this grade. If the pupil can see conditions, think the correct number fact, or perform the correct process and give the result, it is quite sufficient.

In case pupils are unable to perform the problems given to apply the facts and principles taught, they should be led to illustrate them. Physically picturing conditions is the road to mentally picturing them, and only by acquiring the power of mental imagery can they acquire the power of applying principles.

In the preparation of these lessons it has been the aim to make them simple, to fit them to the age of the children for whom they were intended, and to progress, step by step, making no strain upon the understanding of the pupils, but giving it material to work upon.

E. M. P.

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THE ELEMENTS OF ARITHMETIC.

THE ELEMENTS OF ARITHMETIC.

SECTION I.

READING AND WRITING NUMBERS TO 100.

1. 1. Count from one to ten.

2. Count from ten to twenty.

3. Read these numbers: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

4. Read these numbers: 11, 12, 13, 14, 15, 16, 17, 18, 19, 20.

5. Compare *1* and *10*. What is the difference in the way they are written? *1* and *11*? 10 and 11?

6. 1 written alone is 1 what? 10 is 1 what?

7. 11 is how many tens and how many ones?

8. Which one in eleven stands for 1 one? Which 1 stands for 1 ten?

9. Read these numbers and tell what the figures in each stand for: 17, 13, 19, 16, 12, 14, 18, 15, 20.

10. Write the numbers from 1 to 20 in a column, placing the figures which stand for ones under each other, and the figures which stand for tens under each other.

11. Draw the tens and ones representing the numbers from ten to twenty, writing after each the word and figures which represent it.

Example :   Eleven.   11.

2.   Two tens are twenty.

Three tens are thirty.

Four tens are forty.

Five tens are fifty.

Six tens are sixty.
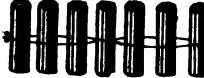
Seven tens are seventy.

Eight tens are eighty.

Nine tens are ninety.

Ten tens are one hundred,

1. Lay two tens on the desk. Two tens are how many?

2. Lay two tens and one one. Two tens and one one are how many?

3. Lay these numbers and read them.
    Two tens and two ones.

4. Two tens and three ones.

5. Two tens and four ones.

6. Two tens and five ones.

7. Two tens and six ones.

8. Two tens and seven ones.

9. Two tens and eight ones.

10. Two tens and nine ones.

11. Three tens.

12. Count from twenty to thirty.

13. Lay and read:
     Three tens and one one.

14. Three tens and two ones.

15. Three tens and three ones.

16. Three tens and four ones.

17. Three tens and five ones.

18. Three tens and six ones.

19. Three tens and seven ones.

20. Three tens and eight ones.

21. Three tens and nine ones.

22. Four tens.

23. Count from thirty to forty

3. 1. What figures stand for ten? What does the 1 stand for?

2. What figures stand for twenty? What does the 2 stand for?

3. What figures stand for eleven? What does the 1 at the right stand for?

4. What figures stand for twelve? What does the 2 stand for?

5. What does a figure in the first place at the right stand for?

6. What does a figure in the second place stand for?

7. How many tens and how many ones make twenty-one?

8. What figures should stand for it?

9. How many tens and how many ones make twenty-two?

10. What figures should stand for it?

11. Write the numbers from twenty to thirty in figures.

12. Write the numbers from thirty to forty in figures.

13. Lay in tens and ones the numbers from forty to fifty.

14. Count from forty to fifty.

15. Write in figures the numbers from forty to fifty.

16. Read these numbers:

26	42	35	33	41	24
38	27	47	22	50	31

17. Write in figures.

Forty-eight.	Thirty-three.	Twenty-five.
Forty-four.	Thirty-seven.	Twenty-nine.
Forty-two.	Thirty-six.	Twenty-one.

4. 1. Lay in tens and ones the numbers from fifty to sixty.

2. Count from fifty to sixty.

3. Write in figures the numbers from fifty to sixty.

4. Lay the numbers from sixty to seventy.

5. Count from sixty to seventy.

6. Write in figures the numbers from sixty to seventy.

7. Lay the numbers from seventy to eighty.

8. Count from seventy to eighty.

9. Write in figures the numbers from seventy to eighty.

10. Lay the numbers from eighty to ninety.

11. Count from eighty to ninety.

12. Write in figures the numbers from eighty to ninety.

13. Lay the numbers from ninety to one hundred.

14. Count from ninety to one hundred.

15. One hundred is how many tens?

16. Can you write ten in the second place?

17. What must we do to represent ten tens in figures?

18. Write in figures the numbers from ninety to one hundred.

19. Read these numbers:

76	68	72	63	90
84	85	89	52	69
59	93	97	70	81
71	100	99	55	96

20. Write in figures:

Sixty-seven.   Fifty-three.   Ninety-two.

Eighty-eight.   One hundred.

Eighty.   Seventy-seven.

21. Write in words :

46	73	100	54	81
35	94	62	97	23

22. Read and write :

$10 + 2 = ?$	$30 + 9 = ?$	$70 + 7 = ?$
$10 + 8 = ?$	$40 + 5 = ?$	$70 + 4 = ?$
$10 + 5 = ?$	$40 + 2 = ?$	$80 + 8 = ?$
$20 + 6 = ?$	$40 + 8 = ?$	$80 + 5 = ?$
$20 + 1 = ?$	$50 + 1 = ?$	$80 + 1 = ?$
$20 + 3 = ?$	$50 + 3 = ?$	$90 + 6 = ?$
$30 + 4 = ?$	$60 + 6 = ?$	$90 + 9 = ?$
$30 + 7 = ?$	$60 + 9 = ?$	$90 + 4 = ?$

23. Make more tables like these adding numbers from 1 to 9 to 20, 30, 40, 50, 60, 70, 80, 90.

24. Write in figures :

Ninety and two are ——.   Seventy and four are ——.
Seventy and three are ——.   Forty and seven are ——.
Forty and five are ——.   Seventy and five are ——.
Twenty and seven are ——.   Thirty and nine are ——.
Eighty and nine are ——.   Sixty and three are ——.
Sixty and six are ——.   Fifty and two are ——.
Thirty and eight are ——.   Eighty and eight are ——.
Fifty and four are ——.   Ninety and six are ——.

SECTION II.

ADDITION DEPENDING ON COMBINATIONS BELOW TEN.

5. 1. Four and three are how many?
2. Two and four are how many?
3. Five and three are how many?
4. Seven is the *sum* of four and three.
5. Six is the *sum* of two and four.
6. What is the sum of five and three?
7. What is the sum of three and two?
8. Nine is the sum of what two numbers?
9. Eight is the sum of what two numbers?
10. Seven is the sum of what two numbers?

Give at sight the sums of the numbers expressed below.

11.	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
	2	1	7	2	1	4	2	1	4
	1	5	1	7	1	4	5	8	2

12.	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
	1	4	3	1	4	8	5	2	3
	4	5	3	3	3	1	2	2	6

13.	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
	3	2	2	5	4	1	2	1	3
	1	6	3	4	1	7	4	2	2

14.	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
	5	6	6	5	1	7	6	3	3
	1	3	1	3	6	2	2	4	5

Finding the sum of numbers is called ADDITION.

ORAL AND WRITTEN EXERCISE.

6. 1. John has two books and Henry has seven books; how many books have they both?

——— books.   2 + 7 =

2. Carrie worked four buttonholes and Lucy worked five; how many buttonholes did they both work?

——— buttonholes.   4 + 5 =

3. George bought six tops and Henry bought three tops; how many tops did they both buy?

——— tops.   6 + 3 =

4. Mary has four dolls and Jennie has three dolls; how many dolls have they both?

——— dolls.   4 + 3 =

5. Frank had five cents and his father gave him two cents; how many cents had he then?

——— cents.   5 + 2 =

6. A grocer sold three pounds of cheese to one man, and five pounds to another; how many pounds did he sell to both?

——— pounds.   3 + 5 =

7. A lady bought three pounds of butter in one week and two pounds the next week; how many pounds did she buy in both weeks?

——— pounds.   3 + 2 =

8. There are six roses in one vase and two roses in another vase; how many roses are there in both vases?

——— roses.   6 + 2 =
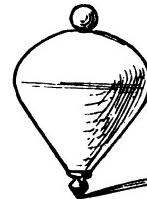
9. There are two boys and four girls in a class; how many children are in the class?

—— children. $2 + 4 =$.

10. Carrie bought five roses and four pinks; how many flowers did she buy?

—— flowers. $5 + 4 =$

11. One week and two days are how many days?

—— days. $7 + 2 =$

12. An orange cost three cents and a banana cost two cents; what did they both cost?

—— cents. $3 + 2 =$
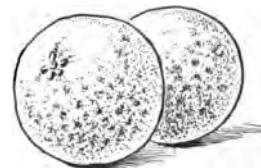
13. Make number stories about $2 + 6$; $4 + 4$; $3 + 5$.

14. Make problems about $7 + 2$; $4 + 3$; $6 + 1$.

7. 1. How many are $2 + 1$? $12 + 1$? $22 + 1$?

2. Think of any number ending in 2. Add 1 to it. What does the answer end in?

3. Think of any number ending in 4. Add 3 to it. What does the answer end in?

4. Give the sums of these numbers:

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
2	1	7	2	1	4	2	1	4
*1	*5	*1	*7	*1	*4	*5	*8	*2

5. Give the sums of the numbers putting 1 in place of *.

6. Give the sums of the numbers putting any figure from 2 to 9 in place of *.

8. Give the sums of these numbers putting any figure from 1 to 9 in place of *.

a	b	c	d	e	f	g	h	i
4	4	3	1	4	8	5	2	3
*4	*5	*3	*3	*3	*1	*2	*2	*6

9.
a	b	c	d	e	f	g	h	i
3	2	2	5	4	1	2	1	3
*1	*6	*3	*4	*1	*7	*4	*2	*2

10.
a	b	c	d	e	f	g	h	i
5	6	6	5	1	7	6	3	3
*1	*3	*1	*3	*6	*2	*2	*4	*5

11.
a	b	c	d	e	f	g	h	i
4	1	2	4	1	2	7	1	2
*2	*8	*5	*4	*1	*7	*1	*5	*1

NOTE: This table covers all combinations of numbers through 9. If the class write this exercise, each pupil supplying * as he chooses, the class papers will all be different.

SECTION III.

SUBTRACTION DEPENDING ON COMBINATIONS BELOW TEN.

8. 1. If three marbles are taken from seven marbles, how many marbles are left?

2. If there are eight children in a room, and two go out, how many children remain?

3. Carrie had five apples; she gave away three and ate the rest; how many did she eat?

If part of any number is taken away, the rest, or what is left, is called the REMAINDER.

4. If George had eight cents, and spent four, what had he left?

5. What is the —— cents called?

6. From each of the following numbers take out 3, and give the remainders at sight: 5, 7, 4, 8, 9, 6.

7. From each of the same numbers take out 2 and give remainders.

8. How much larger is seven than three?

9. How much larger is eight than two?

10. Four is the *difference* between seven and three.

11. Six is the *difference* between eight and two.

12. What is the difference between nine and four?

13. What is the difference between six and two?

14. What is the difference between seven and five?

When two numbers are compared, the amount that one is larger than the other is called the DIFFERENCE.

15. George had nine marbles and lost six; how many marbles had he left?

George's marbles: ◖ ◖ ◖ ◖ ◖ ◖ ◖ ◖ ◖

$$9 - 6 = 3$$

16. Henry had nine marbles and John had six; how many more marbles had Henry than John?

Henry's marbles: ◖ ◖ ◖ ◖ ◖ ◖ ◖ ◖ ◖

John's marbles: ◖ ◖ ◖ ◖ ◖ ◖

The difference between 9 and 6 is 3.

Finding the remainder or the difference is called SUBTRACTION.

Give at sight the difference between these numbers:

17.	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
	8	7	8	9	7	8	7	9	6
	5	3	2	7	6	3	1	3	1

18.	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
	5	3	6	8	5	9	5	8	4
	2	2	4	7	1	4	3	6	1

19.	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
	4	7	9	7	4	6	9	5	9
	2	2	1	4	3	3	5	4	6

20.	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
	6	9	7	8	2	9	8	6	3
	2	8	5	4	1	2	1	5	1

ORAL AND WRITTEN EXERCISE.

9. 1. Henry had nine apples and gave away two; how many apples had he left?

—— apples. $9 - 2 =$

2. John had eight marbles and lost four; how many marbles had he left?

—— marbles. $8 - 4 =$

3. Lucy is seven years old, and Carrie is five years old; how much older is Lucy than Carrie?

—— years older.   The difference between 7 and 5 is ——.

4. Walter has eight books, and George has six; how many more books has Walter than George?

—— more books.   The difference between 8 and 6 is ——.

5. A man has nine cows and four horses; how many more cows has he than horses?
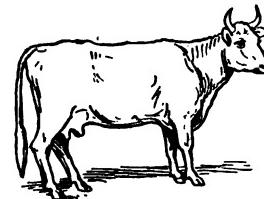
—— more cows.   The difference between 9 and 4 is ——.

6. Fanny had six roses and gave her teacher three; how many roses had she left?

—— roses. $6 - 3 =$

7. A man had seven horses and sold four; how many horses had he left?

—— horses. $7 - 4 =$

8. A man bought a chair for eight dollars and sold it for nine; how much did he gain?

—— dollars.   The difference between 8 and 9 is ——,

9. A lady bought a chair for eight dollars and a table for four dollars; how much more did the chair cost than the table?

—— dollars. The difference between 8 and 4 is ——.

10. Make problems about $9 - 4$; $7 - 3$; $8 - 5$.

10. 1. How many are $7 - 2$? $17 - 2$? $27 - 2$?

2. If you take 2 from any number ending in 7, what must the answer end in?

3. If you subtract 5 from any number ending in 9, what must the answer end in?

4. If you subtract 3 from any number ending in 6, what must the answer end in?

7. Subtract the following, putting any figure from 1 to 9 in place of *.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
*8	*7	*8	*9	*7	*8	*7	*9	*6
5	3	2	7	6	3	1	3	1

8. *a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
*5	*3	*6	*8	*5	*9	*5	*8	*4
2	2	4	7	1	4	3	6	1

9. *a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
*6	*9	*7	*8	*2	*9	*8	*6	*3
2	8	5	4	1	2	1	5	1

10.	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
	*4	*7	*9	*7	*4	*6	*9	*5	*9
	2	2	1	4	3	3	5	4	6

11. Write 7, 8, 9, 10, putting any figure from 1 to 9 in place of *.

ORAL AND WRITTEN EXERCISE.

11. 1. Lucy is 16 years old, and Jennie is 3 years older; how old is Jennie?

2. Carrie had 24 books and bought 4 more; how many books had she then?

3. A man had 36 horses and sold 5; how many had he left?

4. George has 48 papers, and Henry has 5; how many more papers has George than Henry?

5. John rode 54 miles and walked 3; how many miles did he travel?

6. There were 33 books in a bookcase and a lady put in 3 more; how many books were in the book-case?

7. There were 41 pupils in a school and 6 more entered; how many pupils were then in the school?

8. There were 39 pupils in a school and 4 left; how many pupils were left in the school?

9. Carrie's mother is 42 years old; how old will she be in 6 years?
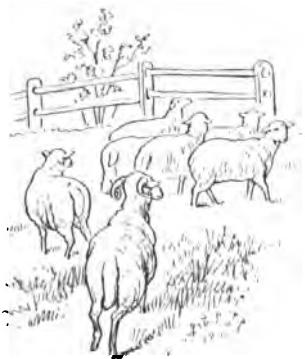
10. Henry's father is 39 years old, and Henry is 5 years old; how much older is his father than Henry?

11. A man had 77 sheep and 4 of them died; how many were left?

12. A man sold 82 dollars' worth of coal and 6 dollars' worth of wood; how much money did he receive?

13. There were 35 houses on a street and 4 more were built; how many houses were then on the street?

14. A box was opened containing 38 lemons and 2 were found to be spoiled; how many good ones were there?

15. A boy who had 17 dollars earned 2 dollars; how many dollars had he then?

16. A man took 3 bananas from a bunch containing 67 ; how many bananas were left?

17. There were 25 birds on a tree and 3 more alighted on it ; how many birds were then on the tree?

18. Jessie picked 4 roses from a bush containing 46 roses; how many roses were left on the bush?

19. Walter had 58 books and gave away 3; how many books had he left?

20. Frank had 32 cents at home and 5 cents in his pocket; how many cents had he?

SECTION IV.

ADDITION AND SUBTRACTION OF TENS.

12. 1. How many tens are 4 tens and 2 tens?   6 tens are how many?

2. How many tens are 3 tens and 6 tens?   9 tens are how many?

3. How many are 20 and 30?

4. How many are 80 and 10?

Give sums at sight:

5. *a*	*b*	*c*	*d*	*e*	*f*
20	10	70	20	10	40
10	50	10	70	10	40

6. *a*	*b*	*c*	*d*	*e*	*f*
20	10	40	10	40	30
50	80	20	40	50	30

7. *a*	*b*	*c*	*d*	*e*	*f*
10	40	80	50	20	30
30	30	10	20	20	60

8. *a*	*b*	*c*	*d*	*e*	*f*
30	20	20	50	40	10
10	60	30	40	19	70

9.	*a*	*b*	*c*	*d*	*e*	*f*
	20	10	30	50	60	60
	40	20	20	10	30	10

10.	*a*	*b*	*c*	*d*	*e*	*f*
	50	10	70	60	30	30
	30	60	20	20	40	50

WRITTEN EXERCISE.

Copy the preceding exercise, writing the sums

13. 1. How many tens are 7 tens less 2 tens?   5 tens are how many?

2. How many are 9 tens less 5 tens?   4 tens are how many?

3. How many are 60 less 20?

4. 80 — 30?

5. 70 — 40?

Subtract:

6.	*a*	*b*	*c*	*d*	*e*	*f*
	80	70	80	90	70	80
	50	30	20	70	60	30

7.	*a*	*b*	*c*	*d*	*e*	*f*
	70	90	60	50	30	60
	10	30	10	20	20	40

8.	*a*	*b*	*c*	*d*	*e*	*f*
	80	50	90	50	80	40
	70	10	40	30	60	10

9.	a	b	c	d	e	f
	40	70	90	70	40	60
	20	20	10	40	30	30

10.	a	b	c	d	e	f
	90	50	90	60	90	70
	50	40	60	20	80	50

11.	a	b	c	d	e	f
	80	20	90	80	60	30
	40	10	20	10	50	10

ORAL AND WRITTEN EXERCISE.

14. 1. George rode 30 miles one day, and John rode 20 miles the next day; how far did they both ride?

2. Henry has 20 cents and Walter has 10 cents; how much money have they both?

3. A man had 50 dollars and spent 30 dollars; how many dollars had he left?

4. Jennie has 60 cents and Carrie has 40 cents; how many more cents has Jennie than Carrie?

5. George worked 50 minutes and John worked 30 minutes; how many more minutes did George work than John?

6. There were 40 books in one library and 30 in another; how many books were in both libraries?

7. Mary had 70 cents and spent 40 cents; how much money had she left?

8. There were 80 pupils in one school and 60 pupils in another; how many more pupils were in the first school than in the second?

9. Walter had 40 cents and earned 50 cents; how much money had he then?

10. A railroad train went 40 miles one hour and 30 miles the next hour; how far did it go in the two hours?

11. One man has 80 books and another has 50 books; how many more books has the first than the second?

12. There were 40 pupils in one school and 30 pupils in another school; how many pupils were in both schools?

13. There are 90 bananas on one bunch and 70 bananas on another bunch; how many more bananas on one bunch than on the other?

14. Make a problem for $40 + 20$; $80 - 30$; the difference between 90 and 60.

15. 1. How many are $30 + 10$? $32 + 10$?

2. How many are $50 + 10$? $56 + 10$?

3. How many are $40 + 10$? $43 + 10$?

4. Add:

31	35	69	74	17	59
50	40	20	20	60	30

5.	66	65	58	36	18	23
	10	30	10	20	20	40

6.	18	46	54	27	24	32
	70	10	40	30	60	10

7.	33	27	51	89	42	11
	60	20	20	10	30	30

8.	32	45	14	41	19	23
	30	50	40	20	80	50

9.	47	12	25	76	13	28
	40	10	70	10	50	10

16. 1. How many are 40−10? 43−10?

2. How many are 60 − 20? 64 − 20?

3. How many are 80 − 30? 86 − 30?

Subtract:

4.	*a*	*b*	*c*	*d*	*e*	*f*
	63	48	94	39	93	86
	10	10	60	10	30	60

5.	*a*	*b*	*c*	*d*	*e*	*f*
	52	67	75	54	93	87
	40	50	10	30	50	10

6.	*a*	*b*	*c*	*d*	*e*	*f*
	81	92	69	91	73	59
	30	40	30	20	60	10

7.	*a*	*b*	*c*	*d*	*e*	*f*
	48	25	98	82	76	85
	30	10	70	70	40	40

8.	*a*	*b*	*c*	*d*	*e*	*f*
	81	64	92	75	76	38
	20	40	10	50	30	20

9.	*a*	*b*	*c*	*d*	*e*	*f*
	76	91	89	57	44	67
	20	80	50	20	20	20

Copy the above examples, and write the answers.

ORAL AND WRITTEN EXERCISE.

17. 1. A milkman delivered 34 quarts of milk one day, and 30 quarts the next day; how many quarts did he deliver in both days?

2. Carrie's mother is 32 years old; how old will she be in 20 years?

3. A storekeeper had 42 dozen lemons; after selling 20 dozen lemons, how many dozen had he left?

4. One railroad train went 58 miles in an hour, and another went 40 miles in an hour; how much farther did the first go than the second?

5. On one rosebush there are 42 roses, on another are **40** roses; how many roses are on both bushes?

6. A man had to travel 48 miles; after travelling 30 miles, how far had he still to go?

7. George has 25 cents and John has 70 cents; how many cents have they both?

8. In one schoolroom there are 46 children, in another 40 children; how many children are in both rooms?

9. A milkman had 75 quarts of milk; after selling 30 quarts, how many quarts had he left?

10. George spent 75 cents for a picture and 50 cents for a book; how much more did the picture cost than the book?

11. Lucy spent 54 cents for a book and 30 cents for a picture; how much money did she spend?

12. A storekeeper sold 85 bananas and 60 oranges; how many more bananas did he sell than oranges?

13. Henry rode 35 miles on his bicycle in one day, and 30 miles the next day; how far did he ride in both days?

14. A boy sold 56 papers in one day and 40 papers the next day; how many papers did he sell in both days?

15. From a box containing 93 oranges a man sold 20; how many oranges were left in the box?

16. In one school are 67 children, in another 40 children; how many more children are in the first school than in the second?

17. In one school are 40 children and in another 39 children; how many children are in both schools?

18. Make problems for 36 + 40; 28 + 50; 87 − 30; the difference between 69 and 40.

SECTION V.

ADDITION AND SUBTRACTION DEPENDING ON COMBINATIONS MAKING TEN.

18. 1. Think of any two numbers whose sum is 10. Think of others.

2. Add the following, putting in place of * the figures which will make the sums 10:

6	7	3	4	2	9	5	8	1
*	*	*	*	*	*	*	*	*
10	10	10	10	10	10	10	10	10

3. Add the following, putting in place of * the figures which will make the sums 20:

*	*	*	*	*	*	*	*	*
16	17	13	14	12	19	15	18	11

4. Add the following, putting any figure from 1 to 9 in place of * :

6	7	3	4	2	9	5	8	1
*4	*3	*7	*6	*8	*1	*5	*2	*9

5. If any two numbers whose ones' figures make 10 are added together, what will the sum end in ?

6. Complete this table, putting any figure from 1 to 9 in place of * , and the figures in place of ? which will make the sums end in 0.

*4 + ? =   *1 + ? =   *8 + ? =
*5 + ? =   *9 + ? =   *2 + ? =
*3 + ? =   *6 + ? =   *7 + ? =

7. Write tables adding 1, 2, 3, 4, 5, 6, 7, 8, 9 to such numbers that the sums shall end in 0.

19. 1. Subtract:

10	10	10	10	10	10	10	10	10
5	3	8	4	6	1	9	7	2

2. Subtract:

20	20	20	20	20	20	20	20	20
5	3	8	4	6	1	9	7	2

3. If you take 8 from any number ending in 0, what will the answer end in?

4. Subtract, putting any figure from 1 to 9 in place of *:

*0	*0	*0	*0	*0	*0	*0	*0	*0
5	3	8	4	6	1	9	7	2

5. Subtract 1, 2, 3, 4, 5, 6, 7, 8, 9 from any number ending in 0.

6. Write tables subtracting 1, 2, 3, 4, 5, 6, 7, 8, 9 from numbers ending in 0.

7. Complete this table, putting any figure from 2 to 9 in place of *:

*0 − 3 = ?   *0 − 8 = ?   *0 − 9 = ?
*0 − 7 = ?   *0 − 5 = ?   *0 − 2 = ?
*0 − 1 = ?   *0 − 4 = ?   *0 − 6 = ?

3

20. 1. John rode 34 miles on a train, then walked 6 miles; how far did he travel?

2. Mary had 20 pinks and gave away 7; how many pinks had she left?

3. Carrie had 42 dollars in the bank and put in 8 dollars more; how much money had she then in the bank?

4. There were 27 persons in a room, and 3 more came in; how many persons were then in the room?

5. A man had 90 sheep and sold 9 of them; how many sheep had he left?

6. There were 70 scholars in a school, and 3 of them left; how many scholars remained?

7. There are 31 books in a case, and 9 on a table; how many books are in the room?

8. A man had 40 hens and 2 of them died; how many hens were left?

9. Jennie picked 5 roses from a bush containing 50 roses; how many roses were left on the bush?

10. There were 36 scholars in a room, and 4 new ones entered; how many scholars were then in the room?

11. John had 70 cents and spent 8 cents; how much money had he left?

12. Henry rode 40 miles and walked 4 miles; how much farther did he ride than walk?

13. George had 25 cents and earned 5 cents; how much money had he then?

14. Jessie has 20 pinks and 6 roses; how many more pinks has she than roses?

15. Mary had 23 books and bought 7 more; how many books had she then?

16. Mr. Brown is 48 years old; how old will he be in 2 years?

17. There were 40 pupils in a school and 1 left; how many pupils remained?

18. Mrs. Smith is 30 years old; how old was she 9 years ago?

19. Frank has 36 books; if he buys 4 more, how many will he have?

20. From a box containing 60 lemons a man sold 8; how many were left?

21. Mr. Green is 60 years old; how old was he 6 years ago?

22. A man who had 33 hens bought 7 more; how many hens had he then?

23. George has sold 57 papers; how many more must he sell to make the number 60?

24. Make problems for $48 + 2$; $73 + 7$; $39 + 1$; $50 - 8$; $60 - 7$; the difference between 80 and 6.

SECTION VI.

ADDITION AND SUBTRACTION DEPENDING ON COMBINATIONS MAKING ELEVEN.

21. 1. Think of any two numbers smaller than 10 whose sum is 11. Think of others.

2. Add the following, putting in place of * the figures which will make the sums 11:

4	6	9	5	7	2	8	3
*	*	*	*	*	*	*	*
11	11	11	11	11	11	11	11

3. Add the following, putting any figure from 1 to 9 in place of * :

4	6	9	5	7	2	8	3
*7	*5	*2	*6	*4	*9	*3	*8

4. If any two numbers are added together whose ones' figures make 11, what will the sum end in?

5. Complete this table, putting any figure from 1 to 9 in place of *, and the number in place of ? which will make the sums end in 1:

*9 + ? =   *2 + ? =
*3 + ? =   *8 + ? =
*4 + ? =   *7 + ? =
*5 + ? =   *6 + ? =

6. Write tables adding 2, 3, 4, 5, 6, 7, 8, 9 to such numbers that the sums shall end in 1.

22. 1. Subtract:

11	11	11	11	11	11	11	11
2	6	4	8	3	9	5	7

2. Subtract, putting any figure from 1 to 9 in place of *:

*1	*1	*1	*1	*1	*1	*1	*1
2	6	4	8	3	9	5	7

3. Subtract 2, 3, 4, 5, 6, 7, 8, 9 from any number ending in 1.

4. Write tables subtracting 2, 3, 4, 5, 6, 7, 8, 9 from numbers ending in 1.

5. Complete this table, putting any figure from 2 to 9 in place of *.

$$*1 - 3 = ? \qquad *1 - 5 = ? \qquad *1 - 2 = ?$$
$$*1 - 9 = ? \qquad *1 - 8 = ? \qquad *1 - 4 = ?$$
$$*1 - 7 = ? \qquad\quad * - 6 = ?$$

ORAL AND WRITTEN EXERCISE.

23. 1. There are 47 boys in the schoolroom, and 4 boys in the yard; how many boys are there in all?

2. Jessie bought 21 pencils, and gave 5 to her little sister; how many had she left?

3. George had 51 hens, and sold 8 of them; how many had he left?

4. John rode 86 miles, and walked 5 miles; how far did he travel?

5. There were 31 apples in a basket, and Mary took out 2 apples; how many apples were left in the basket?
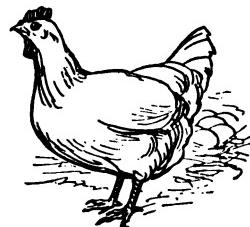
6. Carrie's grandfather is 81 years old; how old was he 4 years ago?

7. George had 23 cents, and earned 8 cents; how many cents had he then?

8. John has 59 cents in his box, and 2 cents in his pocket; how much money has he?
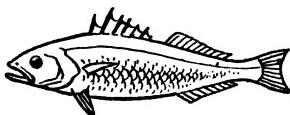
9. James caught 45 fish, and George caught 6 fish; how many did they both catch?

10. Laura had 41 cents, and spent 7 cents; how much money had she left?

11. A lady spent 21 dollars for a sofa, and 9 dollars for a table; how much more did the sofa cost than the table?

12. Henry has 28 books at home and 3 books at school; how many books has he?

13. John has 41 books at home and 6 books at school; how many more books has he at home than at school?

14. Mary has 9 books and her mother has 82; how many books have they both?

15. There were 41 children in a school and 3 of them left; how many remained?

16. Jennie put 3 oranges in a box with 48 more; how many oranges were then in the box?

17. Frank sold 24 papers in one hour and 7 papers in the next hour; how many did he sell in the two hours?

18. A man sold 9 chairs from a lot containing 81 chairs; how many chairs were left?
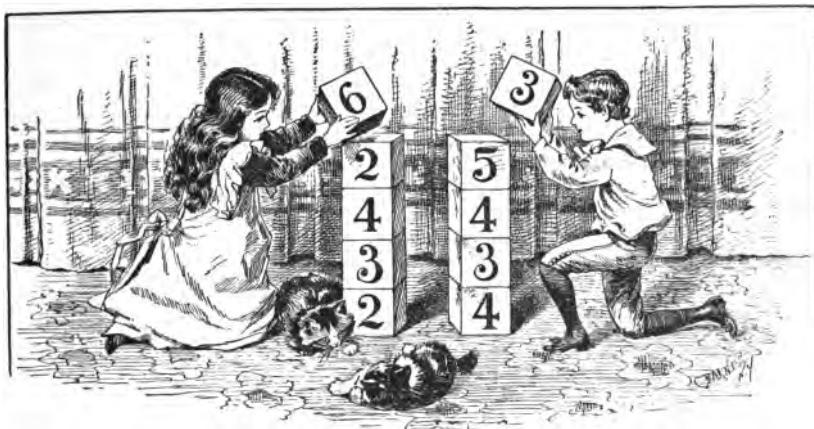
SECTION VII.

ADDITION IN COLUMNS.

[NOTE : These examples are so arranged that by adding from the bottom upward a complete review of combinations to 9 is given, and practice on endings 0 and 1. After adding them as they stand, add again putting any figure from 1 to 7 in place of ✳, adding the lowest numbers as a whole.]

24. 1. Add :

9	8	8	6	9	7	6	4	4
1	2	3	4	1	2	5	6	7
7	4	2	1	9	3	2	3	2
2	5	1	2	1	6	4	3	3
✳1	✳1	✳7	✳7	✳1	✳2	✳4	✳4	✳5

2. Add :

3	2	2	9	8	3	1	7	1
6	8	9	1	2	7	8	3	9
5	5	1	4	3	2	5	6	2
4	1	4	3	1	7	1	1	6
✳2	✳4	✳5	✳3	✳6	✳2	✳5	✳3	✳3

3. Add :

4	8	7	5	3	5	3	2	3
5	2	3	4	6	6	7	7	8
8	7	2	4	7	5	2	6	1
1	2	3	6	3	3	2	2	5
*2	*2	*6	*1	*1	*2	*6	*3	*4

4. Add :

7	5	5	9	6	6	2	1	1
3	4	5	1	4	5	8	9	9
3	4	2	4	1	3	6	3	4
5	2	1	4	8	5	4	7	2
*3	*5	*8	*3	*1	*2	*1	*1	*4

5. In these examples, add the lowest numbers as a whole.

6	9	7	4	9	8	2	5
4	1	2	6	1	2	8	5
9	2	5	1	2	7	8	9
21	19	36	49	68	23	52	32

6. Add :

2	1	3	5	4	8	7	3	6
9	8	7	4	7	3	3	6	5
6	6	4	3	5	4	8	7	3
64	75	77	38	15	26	13	54	47

ADDITION IN TWO COLUMNS.

[NOTE: The " carrying " should be taught before giving these examples to pupils. The examples are so arranged as to afford practice in the endings upon which the pupils have been drilled.]

25. 1.

(1)	(2)	(3)	(4)	(5)	(6)
4	5	12	13	9	18
15	16	27	18	11	23
12	31	13	23	16	14
33	22	23	13	12	24
26	17	15	24	43	12

2.

(7)	(8)	(9)	(10)	(11)	(12)
24	23	22	16	11	15
16	26	18	24	19	25
14	15	17	15	22	16
22	13	22	12	16	22
15	13	12	23	12	12

WRITTEN EXERCISE.

26. 1. A kite cost 14 cents, a book 23 cents, a picture 24 cents, and a top 6 cents; what did they all cost?

Written work:

```
14 cents, cost of kite
23  "     "   " book
24  "     "   " picture
 6  "     "   " top
    "     "   " all
```
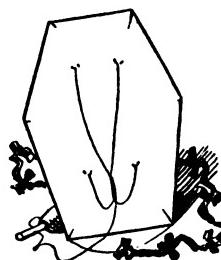
2. A newsboy sold 13 papers Monday, 12 papers Tuesday, 14 papers Wednesday, 12 papers Thursday, 17 papers Friday, and 13 Saturday; how many papers did he sell during that week?

3. George rode 24 miles on his bicycle in one day, 26 miles the next day, and 25 miles the third day; how far did he ride in the three days?

4. Henry caught 17 fish one day, 12 fish the next day, 11 fish the next day, and 10 fish the next day; how many fish did he catch in all?

5. On one bookshelf there are 13 books, on another 15 books, on another 23 books, and on another 18 books; how many books are on all the shelves?

6. There are 16 pupils in one class, 22 in another, 24 in another, and 15 in another; how many pupils are in the four classes?

7. A man sold 18 chairs, 13 tables, 25 stands, and 23 desks; how many pieces of furniture did he sell?

8. A horse traveled 25 miles one day, 14 miles the next, 13 the next, and 24 the next; how far did he travel during the four days?

9. One man worked 17 days on a piece of work, another 35 days, another 12 days, another 24 days; how many days did they all work?

10. A lady bought a sofa for 24 dollars, chairs for 24 dollars, a rug for 16 dollars, and a table for 15 dollars; what did she pay for all?

11. John has 14 marbles, Willie has 23, George has 27, and Henry has 34; how many marbles have they all?
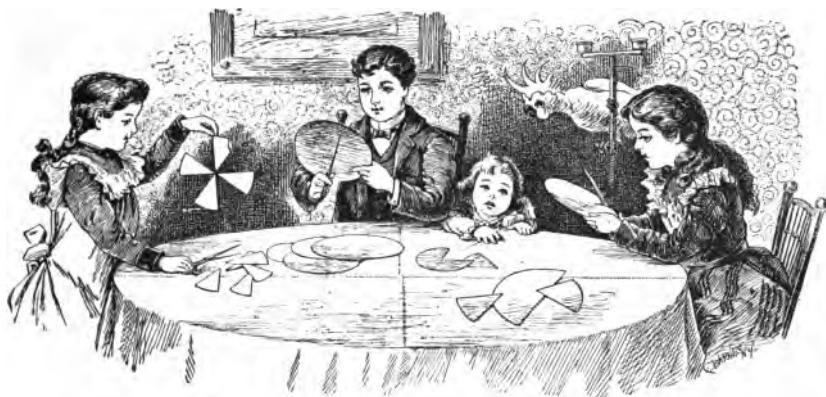
SECTION VIII.

FRACTIONAL PARTS.

27.
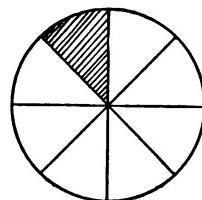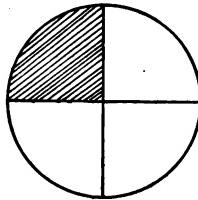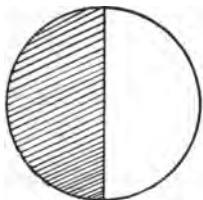
1. Into how many parts is the first circle divided?
2. How do the parts compare in size?
3. What part of the circle is dark?
4. What part of it is light?
5. One half and one half are how many whole ones?
6. One less one half is what?
7. Into how many parts is the second circle divided?
8. What part of the circle is dark?

9. What part of the circle is light?

10. How many fourths are equal to one half?

11. One half and one fourth are what part of the circle?

12. One half less one fourth is what?

13. Into how many parts is the third circle divided?

14. How do the parts compare in size?

15. What part of the circle is dark?

16. What part of the circle is light?

17. How many eighths are equal to one half?

18. How many eighths are equal to one fourth?

19. One half and one eighth are how many eighths?

20. One fourth and one eighth are how many eighths?

21. Draw a square and divide it into halves. Shade one half of it. What part of it is not shaded?

22. Draw a square and divide it into fourths. Shade three fourths of it. What part of it is not shaded?

23. How much more of the second square is shaded than of the first?

24. What is the difference between three fourths and one fourth?

25. What is the difference between one half and one fourth?

26. Draw a square and divide it into eighths. Shade five eighths of it. What part of it is not shaded?

27. What is the difference between five eighths and one half?

28. What is the difference between five eighths and three fourths?

Read, putting the proper figures in the blanks:

29. $1 = \frac{}{2}$ $1 = \frac{}{8}$ $\frac{1}{2} = \frac{}{8}$

    $1 = \frac{}{4}$ $\frac{1}{2} = \frac{}{4}$ $\frac{1}{4} = \frac{}{8}$

30. $\frac{1}{2} + \frac{1}{4} = ?$ $\frac{1}{2} + \frac{1}{8} = ?$ $\frac{1}{8} + \frac{1}{8} = ?$

    $\frac{1}{4} + \frac{1}{4} = ?$ $\frac{1}{4} + \frac{1}{8} = ?$ $\frac{3}{4} + \frac{1}{8} = ?$

31. $\frac{3}{4} - \frac{1}{2} = ?$ $1 - \frac{3}{8} = ?$ $\frac{1}{2} - \frac{1}{8} = ?$

    $\frac{3}{4} - \frac{1}{8} = ?$ $\frac{1}{2} - \frac{1}{4} = ?$ $\frac{7}{8} - \frac{1}{8} = ?$
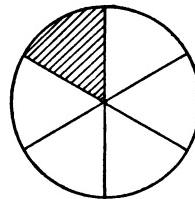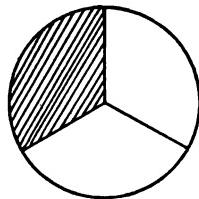
28.

1. Into how many parts is the first circle divided?
2. How do the parts compare in size?
3. What part of the first circle is dark?
4. What part of it is light?
5. Into how many parts is the second circle divided?
6. How do the parts compare in size?
7. What part of it is dark?
8. How many sixths are equal to one third?
9. How many sixths are equal to one half?
10. How many sixths are equal to two thirds?
11. Draw a square and divide it into sixths.   Shade one third of it.   How many sixths did you shade?
12. What is the difference between one half and one third?

13. What is the difference between one half and two thirds?

14. What is the sum of one half and one third?

15. What is the sum of one third and one sixth?

16. What is the sum of one half and one sixth?

17. What is the difference between two thirds and one sixth?

Read, putting the proper figure in the blanks:

18. $\quad \frac{1}{3} = \frac{}{6} \qquad \frac{2}{3} = \frac{}{6} \qquad \frac{1}{2} = \frac{}{6}$

$\quad\qquad \frac{1}{2} = \frac{}{6} \qquad \frac{1}{2} = \frac{}{4} \qquad \frac{1}{2} = \frac{}{8}$

$\quad\qquad 1 = \frac{}{2} \qquad\quad 1 = \frac{}{3} \qquad\quad 1 = \frac{}{6}$

19. $\quad \frac{1}{3} + \frac{1}{3} = ? \qquad \frac{1}{3} + \frac{1}{6} = ? \qquad \frac{1}{2} + \frac{1}{3} = ?$

$\quad\qquad \frac{2}{3} + \frac{1}{3} = ? \qquad \frac{1}{2} + \frac{1}{6} = ? \qquad \frac{2}{3} + \frac{1}{6} = ?$

20. $\quad \frac{2}{3} - \frac{1}{6} = ? \qquad 1 - \frac{1}{6} = ? \qquad \frac{1}{2} - \frac{1}{6} = ?$

$\quad\qquad 1 - \frac{1}{3} = ? \qquad \frac{5}{6} - \frac{1}{3} = ? \qquad \frac{1}{2} - \frac{1}{3} = ?$

$\quad\qquad \frac{5}{6} - \frac{2}{3} = ? \qquad \frac{5}{6} - \frac{1}{6} = ? \qquad \frac{5}{6} - \frac{1}{2} = ?$

29.
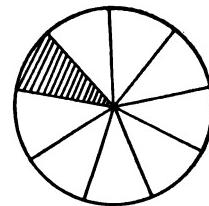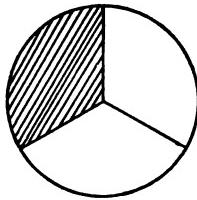

1. Into how many parts is the second circle divided?

2. How do the parts compare in size?

3. What part of the circle is dark?

4. What part of it is light?

5. What part of the first circle is dark?

6. How many ninths are equal to one third?

7. How many ninths are equal to two thirds?

8. What is the sum of one third and two ninths?

9. What is the sum of two thirds and one ninth?

10. What is the difference between one third and one ninth?

11. What is the difference between two thirds and four ninths?

12. What is the difference between three ninths and one third?

13. What is the difference between six ninths and two thirds?

14.

$$1 = \tfrac{}{8} \qquad \tfrac{5}{9} + \tfrac{1}{9} = ? \qquad 1 - \tfrac{2}{9} = ?$$

$$1 = \tfrac{}{9} \qquad \tfrac{1}{3} + \tfrac{1}{9} = ? \qquad \tfrac{2}{3} - \tfrac{1}{9} = ?$$

$$\tfrac{1}{3} = \tfrac{}{9} \qquad \tfrac{2}{3} + \tfrac{2}{9} = ? \qquad \tfrac{1}{3} - \tfrac{1}{9} = ?$$

$$\tfrac{2}{3} = \tfrac{}{9} \qquad \tfrac{2}{9} + \tfrac{1}{9} = ? \qquad \tfrac{8}{9} - \tfrac{2}{3} = ?$$

15. Draw a circle and divide it into seven equal parts. Shade one part. What part of the circle is shaded?

16. What part of it is not shaded?

17. Into how many equal parts is the first of these two squares divided?
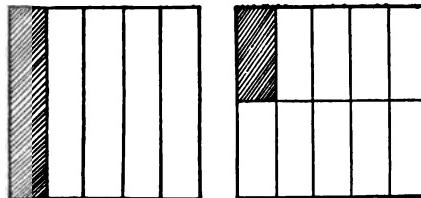
18. What part of the square is dark? What part of it is light?

19. Into how many equal parts is the second square divided?

20. What part of it is dark? What part of it is light?

21. How many tenths are equal to one fifth?

22. How many tenths are equal to two fifths?

23. How many tenths are equal to three fifths?

24. How many tenths are equal to four fifths?

25. How many tenths are equal to one half?

26. Read, putting the proper figures in the blanks:

$$1 = \frac{}{10} \qquad \frac{1}{2} = \frac{}{10} \qquad \frac{3}{5} = \frac{}{10}$$

$$1 = \frac{}{5} \qquad \frac{4}{5} = \frac{}{10} \qquad \frac{2}{5} = \frac{}{10}$$

ORAL AND WRITTEN EXERCISE.

30. 1. If anything is divided into 2 equal parts, each part is called —— .

2. If anything is divided into 3 equal parts, each part is called —— .

3. If anything is divided into 4 equal parts, each part is called ——.

4. If anything is divided into 5 equal parts, each part is called ——.

5. If anything is divided into 6 equal parts, each part is called ——.

6. If anything is divided into 7 equal parts, each part is called ——.

7. If anything is divided into 8 equal parts, each part is called ——.

8. If anything is divided into 9 equal parts, each part is called ——.

9. If anything is divided into 10 equal parts, each part is called ——.

Read, putting the proper figures in the blanks:

10.
$$1 = \frac{}{2} \qquad\qquad 1 = \frac{}{5} \qquad\qquad 1 = \frac{}{8}$$
$$1 = \frac{}{3} \qquad\qquad 1 = \frac{}{6} \qquad\qquad 1 = \frac{}{9}$$
$$1 = \frac{}{4} \qquad\qquad 1 = \frac{}{7} \qquad\qquad 1 = \frac{}{10}$$

11. $\quad \frac{1}{2} = \frac{1}{4} \qquad \frac{1}{2} = \frac{1}{8} \qquad \frac{1}{3} = \frac{1}{6} \qquad \frac{1}{4} = \frac{1}{8}$

$\qquad \frac{1}{2} = \frac{1}{6} \qquad \frac{1}{2} = \frac{1}{10} \qquad \frac{1}{3} = \frac{1}{9} \qquad \frac{1}{5} = \frac{1}{10}$

12. $\qquad \frac{2}{3} = \frac{1}{6} \qquad\qquad \frac{3}{4} = \frac{1}{8} \qquad\qquad \frac{3}{5} = \frac{1}{10}$

$\qquad \frac{2}{3} = \frac{1}{9} \qquad\qquad \frac{2}{5} = \frac{1}{10} \qquad\qquad \frac{4}{5} = \frac{1}{10}$

13. $\quad \frac{1}{2} + \frac{1}{5} = ? \qquad \frac{1}{3} + \frac{1}{9} = ? \qquad \frac{1}{2} + \frac{1}{4} = ?$

$\qquad \frac{1}{2} + \frac{1}{10} = ? \qquad \frac{2}{3} + \frac{1}{9} = ? \qquad \frac{1}{4} + \frac{1}{4} = ?$

14. $\quad \frac{1}{2} + \frac{1}{8} = ? \qquad \frac{1}{4} + \frac{3}{8} = ? \qquad \frac{1}{2} + \frac{1}{6} = ?$

$\qquad \frac{1}{2} + \frac{3}{8} = ? \qquad \frac{1}{3} + \frac{1}{6} = ? \qquad \frac{2}{3} + \frac{1}{6} = ?$

15. $\quad \frac{5}{8} - \frac{1}{2} = ? \qquad \frac{5}{6} - \frac{1}{2} = ? \qquad \frac{8}{9} - \frac{2}{3} = ?$

$\qquad \frac{3}{4} - \frac{1}{2} = ? \qquad \frac{5}{6} - \frac{2}{3} = ? \qquad \frac{4}{5} - \frac{1}{10} = ?$

DICTATION EXERCISE.

Draw a circle; divide it into two equal parts. In each part place its name in figures.

Draw a circle; divide it into two equal parts. Divide each half into two equal parts. In each part write its name in figures.

Draw a circle; divide it into two equal parts. Divide each half into two equal parts. Divide each fourth into two equal parts. In each part write its name in figures.

Draw a circle; divide it into three equal parts. In each part write its name in figures.

Draw a circle; divide it into three equal parts. Divide each third into two equal parts. In each part write its name in figures.

Draw a circle; divide it into three equal parts. Divide each third into three equal parts. In each part write its name in figures.

SECTION IX.

MULTIPLICATION AND DIVISION. — TWOS.
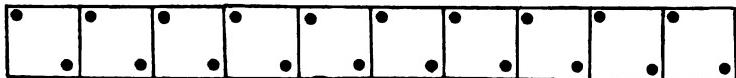
31. 1. Add 2's to 20.

2. How many are 2 × 2?

3. 5 × 2 = ?   6. 6 × 2 = ?   9. 10 × 2 = ?

4. 7 × 2 = ?   7. 4 × 2 = ?   10. 9 × 2 = ?

5. 3 × 2 = ?   8. 8 × 2 = ?

11. 4 is how many 2's?   16. 14 is how many 2's?

12. 8 is how many 2's?   17. 18 is how many 2's?

13. 6 is how many 2's?   18. 20 is how many 2's?

14. 12 is how many 2's?   19. 16 is how many 2's?

15. 10 is how many 2's?

Finding how many 2's there are in a number is called DIVIDING *by 2.*

20.   4 ÷ 2 = ?   20 ÷ 2 = ?   6 ÷ 2 = ?

16 ÷ 2 = ?   10 ÷ 2 = ?   12 ÷ 2 = ?

8 ÷ 2 = ?   14 ÷ 2 = ?   18 ÷ 2 = ?

21. 2 is what part of 4?   26. 2 is what part of 14?

22. 2 is what part of 6?   27. 2 is what part of 16?

23. 2 is what part of 8?   28. 2 is what part of 18?

24. 2 is what part of 10?   29. 2 is what part of 20?

25. 2 is what part of 12?   30. 2 is $\frac{1}{2}$ of what number?

31. 2 is $\frac{1}{3}$ of what number?   35. 2 is $\frac{1}{7}$ of what number?
32. 2 is $\frac{1}{4}$ of what number?   36. 2 is $\frac{1}{8}$ of what number?
33. 2 is $\frac{1}{5}$ of what number?   37. 2 is $\frac{1}{9}$ of what number?
34. 2 is $\frac{1}{6}$ of what number?   38. 2 is $\frac{1}{10}$ of what number?

32.
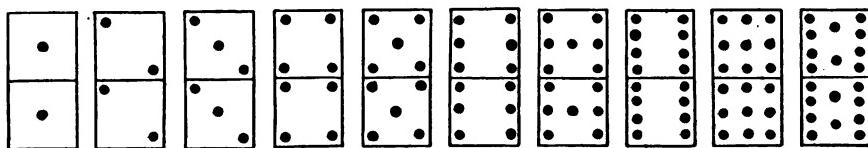
1. How many dots are in each half of the first tablet?
2. How many dots are in the whole of the tablet?
3. 1 is what part of 2?
4. $2 \times 1 = ?$
5. How many dots are in each half of the second tablet? in the whole tablet?
6. 2 is what part of 4?
7. $2 \times 2 = ?$
8. How many dots are in each half of the third tablet? in the whole tablet?
9. 3 is what part of 6?
10. $2 \times 3 = ?$
11. How many dots are in each half of the fourth tablet? in the whole tablet?
12. 4 is what part of 8?
13. $2 \times 4 = ?$

14. How many dots are in each half of the fifth tablet? in the whole tablet?

15. 5 is what part of 10?

16. $2 \times 5 = ?$

17. How many dots are in each half of the sixth tablet? in the whole tablet?

18. 6 is what part of 12?

19. $2 \times 6 = ?$

20. How many dots are in each half of the seventh tablet? in the whole tablet?

21. 7 is what part of 14?

22. $2 \times 7 = ?$

23. How many dots are in each half of the eighth tablet? in the whole tablet?

24. 8 is what part of 16?

25. $2 \times 8 = ?$

26. How many dots are in each half of the ninth tablet? in the whole tablet?

27. 9 is what part of 18?

28. $2 \times 9 = ?$

29. How many dots are in each half of the tenth tablet? in the whole tablet?

30. 10 is what part of 20?

31. $2 \times 10 = ?$

Finding the sum of two or more equal numbers is called MULTIPLICATION.

In the last lesson we multiplied 2 by the numbers from 1 to 10; in this lesson we have multiplied the numbers from 1 to 10 by 2.

The numbers obtained by multiplying 2's, or by multiplying by 2, are called MULTIPLES *of 2.*

ORAL AND WRITTEN EXERCISE.

33.　1. 3 is $\frac{1}{2}$ of what number?

2. 8 is $\frac{1}{3}$ of what number?

3. 5 is $\frac{1}{2}$ of what number?

4. 7 is $\frac{1}{2}$ of what number?

5. 10 is $\frac{1}{2}$ of what number?

6. 1 is $\frac{1}{2}$ of what number?

7. 6 is $\frac{1}{3}$ of what number?

8. 9 is $\frac{1}{2}$ of what number?

9. 2 is $\frac{1}{2}$ of what number?

10. $2 \times 6 = ?$	20. $\frac{1}{2}$ of $18 = ?$
11. $2 \times 9 = ?$	21. $\frac{1}{2}$ of $12 = ?$
12. $2 \times 4 = ?$	22. $\frac{1}{2}$ of $4 = ?$
13. $2 \times 8 = ?$	23. $\frac{1}{2}$ of $10 = ?$
14. $2 \times 10 = ?$	24. $\frac{1}{2}$ of $6 = ?$
15. $2 \times 2 = ?$	25. $\frac{1}{4}$ of $20 = ?$
16. $2 \times 5 = ?$	26. $\frac{1}{2}$ of $14 = ?$
17. $2 \times 7 = ?$	27. $\frac{1}{2}$ of $2 = ?$
18. $2 \times 3 = ?$	28. $\frac{1}{2}$ of $8 = ?$
19. $2 \times 1 = ?$	29. $\frac{1}{2}$ of $16 = ?$

34. 1. Draw or cut rectangles which shall measure 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 inches on one side and 2 inches on the other.   Divide them by lines or folds into square inches.   How many square inches does the rectangle contain which is 2 inches long and 1 inch wide ?

2. How many square inches does the 2-inch square contain ?

3. How many times does the 2-inch square contain the rectangle which is 2 inches long and 1 inch wide ?

4. How many square inches does the rectangle contain which is 3 inches long and 2 inches wide ?

The number of square inches in a rectangle is the AREA *of the rectangle.*

5. What is the area of each of the other rectangles ?

6. How many rectangles the size of the smallest can be cut from each of them ?

7. The smallest rectangle is equal to what part of each of the others ?

8. The rectangle which is 2 inches square is equal to what part of the one which is 4 inches long ?

9. The rectangle which is 3 inches long is equal to what part of the rectangle which is 6 inches long ?

10. The rectangle which is 5 inches long is equal to what part of the one which is 10 inches long.

11. The rectangle which is 3 inches long is equal to what part of the one which is 9 inches long ?

12. The 2-inch square is equal to what part of the rectangle which is 8 inches long ?

35. 1. What measures are used in measuring milk?

2. A pint is what part of a quart?

3. A quart is what part of a gallon?

4. How many pints are there in a gallon?

5. How many pints are there in 6 quarts?

6. How many quarts are there in 6 pints?

7.	8 qts. = —— pts.	20.	6 qts. 1 pt. = —— pts.
8.	2 qts. = —— pts.	21.	3 qts. 1 pt. = —— pts.
9.	9 qts. = —— pts.	22.	5 qts. 1 pt. = —— pts.
10.	4 qts. = —— pts.	23.	8 qts. 1 pt. = —— pts.
11.	5 qts. = —— pts.	24.	10 pts. = —— qts.
12.	10 qts. = —— pts.	25.	16 pts. = —— qts.
13.	3 qts. = —— pts.	26.	8 pts. = —— qts.
14.	7 qts. = —— pts.	27.	12 pts. = —— qts.
15.	6 qts. = —— pts.	28.	18 pts. = —— qts.
16.	8 qts. 1 pt. = —— pts.	29.	20 pts. = —— qts.
17.	4 qts. 1 pt. = —— pts.	30.	4 pts. = —— qts.
18.	7 qts. 1 pt. = —— pts.	31.	14 pts. = —— qts.
19.	9 qts. 1 pt. = —— pts.	32.	6 pts. = —— qts.

36. 1. Beginning with 2, say the multiples of 2 to 20.

Multiples of 2 *are called* EVEN *numbers; other numbers are called* ODD *numbers.*

2. Beginning with 1, say the odd numbers to 19.

3. How many 2's are there in 4? in 6? in 8? in 5? in 3?

4. If we divide odd numbers by 2, what remainder do we always find?

5. What is the largest multiple of 2 smaller than 7? How many 2's does it contain?

6. 7 is how many 2's?

7. What is the largest multiple of 2 smaller than 9? How many 2's does it contain?

8. 9 is how many 2's?

9. What is the largest multiple of 2 smaller than 11? How many 2's does it contain?

10. 11 is how many 2's?

11. What is the largest multiple of 2 smaller than 13? How many 2's does it contain?

12. 13 is how many 2's?

13. What is the largest multiple of 2 smaller than 15? How many 2's does it contain?

14. 15 is how many 2's?

15. What is the largest multiple of 2 smaller than 17? How many 2's does it contain?

16. 17 is how many 2's?

17. What is the largest multiple of 2 smaller than 19? How many 2's does it contain?

18. 19 is how many 2's?

19. $3 \div 2 = ?$ $11 \div 2 = ?$ $9 \div 2 = ?$
    $13 \div 2 = ?$ $19 \div 2 = ?$ $17 \div 2 = ?$
     $7 \div 2 = ?$ $15 \div 2 = ?$ $5 \div 2 = ?$

(Write: $3 \div 2 = 1$, 1 rem.)

20. 7 pts. = —— qts. —— pt.
21. 3 pts. = —— qts. —— pt.
22. 11 pts. = —— qts. —— pt.
23. 17 pts. = —— qts. —— pt.
24. 19 pts. = —— qts. —— pt.
25. 13 pts. = —— qts. —— pt.
26. 5 pts. = —— qts. —— pt.
27. 9 pts. = —— qts. —— pt.
28. 15 pts. = —— qts. —— pt.

DICTATION EXERCISE.

1. Draw a square which shall contain 4 square inches.

2. Draw a rectangle 2 inches wide which shall contain 6 square inches.

3. Draw a rectangle 2 inches wide which shall contain 10 square inches.

4. Draw a rectangle 2 inches wide which shall contain 14 square inches.

5. Draw a rectangle 2 inches wide which shall contain 12 square inches.

6. Draw a rectangle 2 inches wide which shall contain 18 square inches.

7. Draw a rectangle 2 inches wide which shall contain 16 square inches.

8. Draw a rectangle 2 inches wide which shall contain 20 square inches.

9. Draw a rectangle 2 inches wide which shall contain 8 square inches.

SECTION X.

ADDITION AND SUBTRACTION DEPENDING ON COMBINATIONS MAKING TWELVE.

37. 1. Think of any two numbers smaller than 10 whose sum is 12.   Think of others.

1. Add the following, putting in place of * the figure which will make the sums 12:

3	7	9	5	8	6	4
*	*	*	*	*	*	*
12	12	12	12	12	12	12

3. Add this exercise, putting any figure from 1 to 9 in place of *:

3	7	9	5	8	6	4
*9	*5	*3	*7	*4	*6	*8

4. If any two numbers are added together whose ones' figures make 12, what will the answer end in?

5. Complete this table, putting any figure from 1 to 9 in place of *, and the figure in place of ? which will make the sums end in 2 :

*4 + ? =	*5 + ? =
*7 + ? =	*8 + ? =
*9 + ? =	*3 + ? =
*6 + ? =	

6. Write tables, adding 3, 4, 5, 6, 7, 8, 9, to such figures that the sums shall end in 2.

38. 1. Subtract:

12	12	12	12	12	12	12
3	7	5	9	4	8	6

2. Subtract, putting any figure from 1 to 9 in place of $*$:

$*2$	$*2$	$*2$	$*2$	$*2$	$*2$	$*2$
3	7	5	9	4	8	6

3. Subtract 3, 4, 5, 6, 7, 8, 9 from any number ending in 2.

4. Complete this table, putting any figure from 2 to 9 in place of $*$:

$*2 - 5 = ?$ $*2 - 9 = ?$ $*2 - 4 = ?$
$*2 - 7 = ?$ $*2 - 8 = ?$ $*2 - 6 = ?$
$*2 - 3 = ?$

ORAL AND WRITTEN EXERCISE.

39. 1. John rode 49 miles and walked 3 miles; how far did he travel?

2. A storekeeper sold 9 bananas from a bunch containing 72 bananas; how many bananas were left on the bunch?

3. Henry had 92 cents and spent 8 cents; how many cents had he left?

4. George had 45 marbles and bought 7 more; how many marbles had he then?

5. Jennie had 62 roses and gave away 7; how many roses had she left?

6. Lucy had 24 books and Carrie had 8; how many books had they both?

7. A man had 86 books and bought 6 more; how many books had he then?

8. There are 52 books in a case and 6 books on the table; how many more books are in the case than on the table?

9. A boy started to walk 22 miles; when he had walked 5 miles, how much farther had he to go?

10. A man bought a wagon for 63 dollars and sold it for 9 dollars more than he paid for it; for how much did he sell it?

11. A man bought a wagon for 52 dollars and sold it for 4 dollars less than he paid for it; for how much did he sell it?

12. Make problems for 58 + 4; 67 + 5; 92 − 3; the difference between 22 and 6.
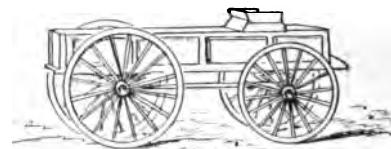
<center>ORAL AND WRITTEN EXERCISE.</center>

40. 1. Add these examples as they stand, then putting any figure from 1 to 9 in place of ✱:

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
5	7	3	8	6	4	3	6	4
6	3	8	4	2	7	5	5	7
5	5	2	2	3	3	7	4	3
2	5	1	7	8	2	4	4	5
✱4	✱2	✱8	✱1	✱1	✱5	✱1	✱3	✱3

2.

a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
2	1	3	5	9	9	3	4	2
9	8	6	6	3	1	7	4	8
1	2	4	5	6	3	4	6	2
5	6	3	2	1	3	2	1	4
✱4	✱3	✱5	✱3	✱3	✱4	✱6	✱5	✱4

3.	a	b	c	d	e	f	g	h	i
	7	2	5	1	8	6	7	6	9
	3	8	6	9	3	5	2	5	2
	6	3	3	7	4	9	5	4	1
	3	7	6	3	1	1	6	3	2
	*2	*2	*2	*1	*6	*1	*1	*3	*7

4.	a	b	c	d	e	f	g	h	i
	5	7	5	8	4	6	1	7	4
	4	3	4	1	5	4	9	1	7
	2	3	4	8	7	5	9	6	8
	3	4	1	2	1	5	1	4	2
	*6	*5	*7	*2	*4	*1	*2	*2	*1

5.	a	b	c	d	e	f
	19	15	14	39	27	18
	33	24	14	11	11	21
	28	19	13	25	15	36
	12	22	39	15	27	15

6.	a	b	c	d	e	f	g
	16	15	29	24	24	23	18
	34	15	22	15	16	19	22
	21	23	13	16	34	16	24
	19	18	27	26	18	14	17

7. Add the lowest number as a whole:

a	b	c	d	e	f	g
4	6	3	8	4	9	5
5	4	9	2	6	2	5
6	1	6	4	4	3	3
56	49	34	17	38	67	58

8.

a	b	c	d	e	f
9	8	7	4	5	9
3	1	1	4	4	1
8	6	5	3	9	5
22	75	67	29	72	45

WRITTEN EXERCISE.

41. 1. There are 17 pencils in one box, 12 in another, 39 in another, and 23 in another; how many pencils are there in all?

2. There are 28 pupils in one class, 13 in another, 12 in another, and 29 in another; how many pupils are in the four classes?

3. Henry has 27 cents, John has 23 cents, Mary has 17 cents, and Carrie has 25 cents; how much money have they all?

4. A top cost 13 cents; a book, 37 cents; a map, 19 cents; and a picture, 21 cents; what did they all cost?

5. A man traveled 33 miles one day, 18 miles the next day, 25 miles the next day, and 16 miles the next day; how far did he travel in the four days?

6. A man paid 16 dollars for a table, 45 dollars for a carpet 17 dollars for chairs, and 13 dollars for a lounge; what did he pay for all?

7. A boy sold 12 papers one day, 17 papers the next day, 28 papers the next day, and 23 papers the next day; how many papers did he sell in all?

8. On one rosebush are 15 roses, on another 26, on another 17, and on another 34; how many roses are on all the bushes?

9. In a hall are 26 boys, 26 girls, 12 men, and 18 women; how many persons are in the hall?

10. In an orchard are 31 apple-trees, 17 pear-trees, 18 quince-trees, and 24 peach-trees; how many trees are in the orchard?

11. A storekeeper sold 23 dozen eggs one day, 28 dozen another day, 24 dozen another day, and 16 dozen another day; how many dozen did he sell in the four days?

12. A storekeeper has 24 red tops, 27 blue tops, 25 yellow tops, and 16 white tops; how many tops has he?

13. Jessie read 12 pages one day, 18 pages the next day, 13 pages the next day, and 19 pages the next day; how many pages did she read in all?

14. On one shelf are 27 books, on another 23, on another 24, and on another 28; how many books are in the case?
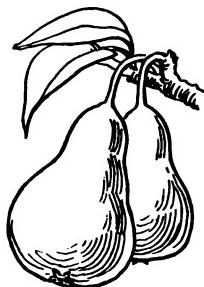
SECTION XI.

MULTIPLICATION AND DIVISION. — THREES.

42. 1. Add 3's to 30.

2. How many are 2×3?

3. $3 \times 3 = ?$

4. $5 \times 3 = ?$

5. $4 \times 3 = ?$

6. $6 \times 3 = ?$

7. $8 \times 3 = ?$

8. $7 \times 3 = ?$

9. $10 \times 3 = ?$

10. $9 \times 3 = ?$

11. 6 is how many 3's?

12. 12 is how many 3's?

13. 9 is how many 3's?

14. 15 is how many 3's?

15. 21 is how many 3's?

16. 18 is how many 3's?

17. 24 is how many 3's?

18. 30 is how many 3's?

19. 27 is how many 3's?

Finding how many 3's there are in a number is called DIVIDING BY 3.

20. $6 \div 3 = ?$ $9 \div 3 = ?$ $30 \div 3 = ?$

    $18 \div 3 = ?$ $15 \div 3 = ?$ $12 \div 3 = ?$

    $27 \div 3 = ?$ $24 \div 3 = ?$ $21 \div 3 = ?$

21. 3 is what part of 6?

22. 3 is what part of 9?

23. 3 is what part of 12?

24. 3 is what part of 15?

25. 3 is what part of 18?

26. 3 is what part of 21?

27. 3 is what part of 24?

28. 3 is what part of 27?

29. 3 is what part of 30 ? 34. 3 is $\frac{1}{6}$ of what number ?

30. 3 is $\frac{1}{2}$ of what number ? 35. 3 is $\frac{1}{7}$ of what number ?

31. 3 is $\frac{1}{3}$ of what number ? 36. 3 is $\frac{1}{8}$ of what number ?

32. 3 is $\frac{1}{4}$ of what number ? 37. 3 is $\frac{1}{9}$ of what number ?

33. 3 is $\frac{1}{5}$ of what number ? 38. 3 is $\frac{1}{10}$ of what number ?

43. Draw tablets showing the numbers from 1 to 10 multiplied by 3.

1. How many dots are in one third of the first tablet? in the whole tablet ?

2. 1 is what part of 3 ?

3. $3 \times 1 =$?

4. How many dots are in one third of the second tablet? in the whole tablet?

5. 2 is what part of 6 ?

6. $3 \times 2 =$?

7. How many dots are in one third of the third tablet? in the whole tablet ?

8. 3 is what part of 9 ?

9. $3 \times 3 =$?

10. How many dots are in one third of the fourth tablet? in the whole tablet?

11. 4 is what part of 12 ?

12. $3 \times 4 =$?

13. How many dots are in one third of the fifth tablet? in the whole tablet?

14. 5 is what part of 15 ?

15. $3 \times 5 = ?$

16. How many dots are in one third of the sixth tablet? in the whole tablet?

17. 6 is what part of 18?

18. $3 \times 6 = ?$

19. How many dots are in one third of the seventh tablet? in the whole tablet?

20. 7 is what part of 21?

21. $3 \times 7 = ?$

22. How many dots are in one third of the eighth tablet? in the whole tablet?

23. 8 is what part of 24?

24. $3 \times 8 = ?$

25. How many dots are in each third of the ninth tablet? in the whole tablet?

26. 9 is what part of 27?

27. $3 \times 9 = ?$

28. How many dots are in each third of the tenth tablet? in the whole tablet?

29. 10 is what part of 30?

30. $3 \times 10 = ?$

ORAL AND WRITTEN EXERCISE.

44. 1.   4 is $\frac{1}{3}$ of what number?

2.   9 is $\frac{1}{3}$ of what number?

3.   7 is $\frac{1}{3}$ of what number?

4.   2 is $\frac{1}{3}$ of what number?

5. 6 is $\frac{1}{3}$ of what number?

6. 10 is $\frac{1}{3}$ of what number?

7. 8 is $\frac{1}{3}$ of what number?

8. 3 is $\frac{1}{3}$ of what number?

9. 5 is $\frac{1}{3}$ of what number?

10. 1 is $\frac{1}{3}$ of what number?

11.	$3 \times 4 = ?$	21.	$\frac{1}{3}$ of $12 = ?$
12.	$3 \times 9 = ?$	22.	$\frac{1}{3}$ of $21 = ?$
13.	$3 \times 6 = ?$	23.	$\frac{1}{3}$ of $30 = ?$
14.	$3 \times 2 = ?$	24.	$\frac{1}{3}$ of $6 = ?$
15.	$3 \times 7 = ?$	25.	$\frac{1}{3}$ of $9 = ?$
16.	$3 \times 10 = ?$	26.	$\frac{1}{3}$ of $27 = ?$
17.	$3 \times 5 = ?$	27.	$\frac{1}{3}$ of $18 = ?$
18.	$3 \times 8 = ?$	28.	$\frac{1}{3}$ of $3 = ?$
19.	$3 \times 1 = ?$	29.	$\frac{1}{3}$ of $15 = ?$
20.	$3 \times 3 = ?$	30.	$\frac{1}{3}$ of $24 = ?$

45. Draw or cut rectangles which shall measure 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 inches on one side, and 3 inches on the other side. Divide them by folds or lines into square inches.

1. What is the area of each of the rectangles?

2. How many rectangles the size of the smallest can be cut from each of the others?

3. The smallest rectangle is equal to what part of each of the others?

Draw a line a foot long.

Draw a line 3 feet long.

4. The second line is how many times as long as the first?

5. The first line is equal to what part of the second?

The second line is *one yard* long.

6. A yard is how many feet?

7. A foot is what part of a yard?

8. How many feet long is a line which is 3 yards long?

9. How many yards long is a line which is 6 feet long?

10. How many yards long is a pole which is 15 feet long?

11.   2 yds. = —— ft.   6 yds. = —— ft.
      5 yds. = —— ft.   9 yds. = —— ft.
      8 yds. = —— ft.   4 yds. = —— ft.
    10 yds. = —— ft.   7 yds. = —— ft.

12.   6 yds. 1 ft. = —— ft.   9 yds. 1 ft. = —— ft.
     4 yds. 2 ft. = —— ft.   5 yds. 1 ft. = —— ft.
     7 yds. 2 ft. = —— ft.   8 yds. 2 ft. = —— ft.

13.   27 ft. = —— yds.   24 ft. = —— yds.
     15 ft. = —— yds.   18 ft. = —— yds.
      6 ft. = —— yds.   12 ft. = —— yds.
     21 ft. = —— yds.   30 ft. = —— yds.

14. John walked 3 miles and rode 8 times as far; how far did he ride?

15. Henry has 30 pencils and George has $\frac{1}{10}$ as many; how many pencils has George?

16. If $\frac{1}{7}$ of Walter's money is 3 cents, how much money has he?

17. If a man can walk 3 miles an hour, how far can he walk in 3 hours at the same rate?

18. If 9 slates cost 27 cents, what is the cost of 1?

19. If 6 men can do a piece of work in 3 days, how long will it take 1 man to do it?

20. How many leaflets have 5 clover leaves?

21. How many sides have 4 triangles?
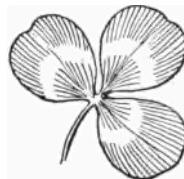
46. 1. Beginning with 3 say the multiples of 3 to 30.

2. Subtract from each of these numbers the nearest multiple of 3 smaller than the number:

7	10	8	23	26	4
11	19	5	25	22	13
16	14	17	29	28	20

3. What remainders may we have in dividing by 3?

4.
$$10 \div 3 = ? \qquad 26 \div 3 = ?$$
$$14 \div 3 = ? \qquad 11 \div 3 = ?$$
$$17 \div 3 = ? \qquad 7 \div 3 = ?$$

5.
$$20 \div 3 = ? \qquad 19 \div 3 = ?$$
$$13 \div 3 = ? \qquad 8 \div 3 = ?$$
$$16 \div 3 = ? \qquad 23 \div 3 = ?$$

6.
$$5 \div 3 = ? \qquad 28 \div 3 = ?$$
$$25 \div 3 = ? \qquad 4 \div 2 = ?$$
$$22 \div 3 = ? \qquad 29 \div 3 = ?$$

7. How many 3-inch sticks can be cut from a 7-inch stick, and what will be left?

8. How many rectangles 3 inches long and 1 inch wide can you lay with 11 square inches, and what will be left?

9. At 3 cents apiece how many tops can be bought for 13 cents?

10. How many 3-dollar hats can be bought for 17 dollars?

11. How many yardsticks can be cut from a stick 20 feet long, and how long a piece will be left?

12. At 3 dollars each, how many chairs can be bought for 14 dollars?

13. If a rectangle 3 inches wide contains 24 square inches, how long is it?

14. If 3 slates cost 27 cents, what is the cost of 1 slate?

15. How many 3-inch sticks can be cut from a 16-inch stick, and what will be left?

16. How many yardsticks can be cut from a stick 23 feet long, and how long a piece will be left?

17. How many rectangles 3 inches long and 1 inch wide can be laid with 17 square inches, and what will be left?

18. If a boy walks 3 miles an hour, how many hours will it take him to walk 9 miles?

19. 4 ft. = —— yd. —— ft.   10 ft. = —— yds. —— ft.
     28 ft. = —— yds. —— ft.   25 ft. = —— yds. —— ft.
     22 ft. = —— yds. —— ft.   5 ft. = —— yd. —— ft.

20. 23 ft. = —— yds. —— ft.   16 ft. = —— yds. —— ft.
    29 ft. = —— yds. —— ft.   26 ft. = —— yds. —— ft.
    13 ft. = —— yds. —— ft.   19 ft. = —— yds. —— ft.

SECTION XII.

ADDITION AND SUBTRACTION DEPENDING ON COMBINATIONS MAKING 13.

47. 1. Think of any two numbers smaller than 10, whose sum is 13. Think of others.

2. Add the following, putting in place of * the figure which will make the sums 13:

4	7	9	5	8	6
*	*	*	*	*	*
13	13	13	13	13	13

3. Add the following, putting any figure from 1 to 9 in place of *:

4	7	9	5	8	6
*9	*6	*4	*8	*5	*7

4. If any two numbers are added together whose ones' figures make 13, what will the answer end in?

5. Complete this table, putting any figure from 1 to 9 in place of *, and the figure in place of ? which will make the sums end in 3:

*4 + ? =	*8 + ? =	*9 + ? =
*6 + ? =	*5 + ? =	*7 + ? =

6. Write tables, adding 4, 5, 6, 7, 8, 9, to such figures that the sums shall end in 3.

48. 1. Subtract:

13	13	13	13	13	13
9	4	6	8	5	7

2. Subtract, putting any figure from 1 to 9 in place of $*$:

$*3$	$*3$	$*3$	$*3$	$*3$	$*3$
9	4	6	8	5	7

3. Subtract 4, 5, 6, 7, 8, 9, from any number ending in 3.

4. Complete this table, putting any figure from 2 to 9 in place of $*$:

$*3 - 8 = ?$ $*3 - 7 = ?$ $*3 - 9 = ?$

$*3 - 4 = ?$ $*3 - 5 = ?$ $*3 - 6 = ?$

ORAL AND WRITTEN EXERCISE.

49. 1. A boy bought a wagon for 75 cents and sold it for 8 cents more than he paid for it; for how much did he sell it?

2. A boy bought a book for 63 cents and sold it for 5 cents less than he paid for it; for how much did he sell it?

3. A man had 73 horses and sold 9 of them; how many horses had he left?

4. A man started on a journey of 33 miles; when he had traveled 7 miles how much farther had he to go?

5. Henry rode 57 miles on a train and 6 miles on his velocipede; how far did he travel?

6. Carrie is 4 years old and her mother is 33; what is the difference in their ages?

7. George had 89 cents and his mother gave him 4 more; how many cents had he then?

8. A lady had 43 chickens and sold 8 of them; how many chickens remained?.

9. There are 83 books in a case, and 6 books on the table; how many more books are in the case than on the table?

10. Lucy's mother is 38 years old and her father is 5 years older; how old is her father?

11. There are 16 pupils in one class and 7 pupils in another; how many pupils are in both classes?

12. George read 24 pages in the morning and 9 pages in the afternoon; how many pages did he read?

13. Make problems for 34 + 9; 76 + 7; 25 + 8; 53 − 7; the difference between 33 and 9; between 63 and 5.

ORAL AND WRITTEN EXERCISE.

50. 1. Add.　Put any figure from 1 to 7 in place of ✻ :

a	b	c	d	e	f	g	h	i
9	9	8	6	7	4	8	8	5
7	9	8	7	6	8	9	5	5
6	5	9	4	5	7	4	1	4
8	2	2	1	4	2	1	5	6
✻2	✻4	✻1	✻5	✻1	✻2	✻9	✻4	✻3

2.

a	b	c	d	e	f	g	h	i
5	6	9	5	6	4	7	9	9
5	3	8	4	3	6	2	2	9
4	8	4	4	8	3	8	6	3
7	2	2	6	1	6	9	3	2
✻1	✻3	✻7	✻2	✻3	✻1	✻1	✻3	✻8

3.

a	b	c	d	e	f	g	h	i
6	9	4	8	4	3	3	3	8
7	1	7	1	6	5	6	4	9
6	3	3	7	3	1	6	9	7
1	7	4	5	2	3	4	3	3
✻6	✻2	✻4	✻1	✻6	✻7	✻3	✻1	✻2

4.

a	b	c	d	e	f	g	h	i
7	3	5	7	5	8	7	4	2
9	8	4	3	7	2	8	8	9
2	2	2	2	5	4	5	5	1
4	5	3	4	3	3	6	2	1
✻6	✻3	✻6	✻5	✻5	✻4	✻4	✻5	✻8

5.	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
	6	1	2	6	8	9	3	4	5
	8	7	6	6	9	1	9	8	4
	5	3	5	7	7	6	8	9	9
	1	8	5	5	4	1	1	1	7
	*7	*1	*2	*5	*2	*4	*2	*1	*3

6.	*a*	*b*	*c*	*d*	*e*
	29	9	27	18	24
	21	12	19	23	16
	14	29	38	27	34
	26	31	13	25	19

7.	*a*	*b*	*c*	*d*	*e*
	19	19	16	14	21
	24	28	34	36	19
	23	36	28	17	32
	27	16	15	24	18

8.	*a*	*b*	*c*	*d*	*e*
	6	15	18	36	19
	34	25	23	14	29
	29	38	16	29	17
	22	14	35	13	26

9. Add the lowest number as a whole :

	a	*b*	*c*	*d*	*e*
	9	3	8	9	5
	3	8	9	8	6
	8	2	3	6	1
	42	29	69	47	19

10.	*a*	*b*	*c*	*d*	*e*
	7	8	3	2	3
	5	2	7	7	6
	6	5	5	3	5
	64	16	35	78	57

11.	*a*	*b*	*c*	*d*	*e*
	4	7	8	5	2
	5	5	7	8	7
	9	4	5	7	4
	24	37	78	13	58

WRITTEN EXERCISE.

51. 1. A farmer owns 24 sheep, 26 cows, 29 pigs, and 12 horses; how many animals does he own?
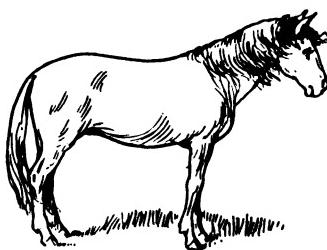
2. A man built 15 feet of wall in one day, 24 feet the next day, 16 feet the next day, and 27 feet the next day; how many feet did he build in all?

3. A girl read 17 pages one day, 24 pages the next day, 26 pages the next day, and 16 pages the next day; how many pages did she read in the four days?

4. George has 19 books, Mary has 11, Carrie has 35, and Jennie has 18; how many books have they all?

5. A man travelled 22 miles one day, 28 miles another day, 18 miles another day, and 13 miles another day; how far did he travel in the four days?

6. In one class are 15 pupils, in another 13, in another 17, and in another 16; how many pupils are in the four classes?

7. In one room are 14 pictures, in another 37, in another 26, and in another 15; how many pictures are in all the rooms?

8. John bought a book for 13 cents, a kite for 26 cents, a map for 14 cents, and some paper for 29 cents; how much money did he spend?

9. A man has 15 pear trees, 37 apple trees, 15 peach trees, and 26 cherry trees; how many fruit trees has he?

10. George caught 16 fish, Henry 24, John 18, and Walter 35; how many fish did they all catch?

11. Carrie picked 19 roses from one bush, 14 from another, 14 from another, and 16 from another; how many roses did she pick in all?

12. James sold 24 papers, John sold 27, Frank sold 23, and Charles sold 29; how many papers did they all sell?

13. Make problems for these examples:

15	14	23	18	16	16
36	17	15	12	15	25
17	19	18	29	27	38
25	33	35	24	24	14

SECTION XIII.

MULTIPLICATION AND DIVISION — FOURS.
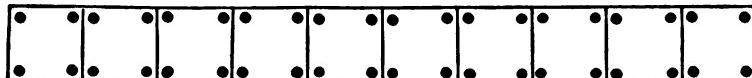
52. 1. Add 4's to 40.

2. How many are 2×4?

3. $3 \times 4 = ?$

4. $5 \times 4 = ?$

5. $4 \times 4 = ?$

6. $6 \times 4 = ?$

7. $8 \times 4 = ?$

8. $7 \times 4 = ?$

9. $9 \times 4 = ?$

10. $10 \times 4 = ?$

11. 8 is how many 4's?

12. 12 is how many 4's?

13. 20 is how many 4's?

14. 28 is how many 4's?

15. 16 is how many 4's?

16. 24 is how many 4's?

17. 32 is how many 4's?

18. 40 is how many 4's?

19. 36 is how many 4's?

Finding how many 4's there are in a number is called DIVIDING BY 4.

20. $24 \div 4 = ?$ $20 \div 4 = ?$ $16 \div 4 = ?$

$36 \div 4 = ?$ $8 \div 4 = ?$ $40 \div 4 = ?$

$12 \div 4 = ?$ $32 \div 4 = ?$ $28 \div 4 = ?$

21. 4 is what part of 8?

22. 4 is what part of 12?

23. 4 is what part of 16?

24. 4 is what part of 20?

25. 4 is what part of 24?

26. 4 is what part of 28?

27. 4 is what part of 32?

28. 4 is what part of 36?

29. 4 is what part of 40?

30. 4 is $\frac{1}{3}$ of what number?

31. 4 is $\frac{1}{5}$ of what number?

32. 4 is $\frac{1}{2}$ of what number?

33. 4 is $\frac{1}{3}$ of what number?

34. 4 is $\frac{1}{7}$ of what number?

35. 4 is $\frac{1}{10}$ of what number?

36. 4 is $\frac{1}{6}$ of what number?

37. 4 is $\frac{1}{4}$ of what number?

38. 4 is $\frac{1}{8}$ of what number?

53. 1. What is the area of a rectangle 4 inches long and 1 inch wide?

2. $4 \times 1 = ?$

3. 1 is what part of 4?

4. What is the area of a rectangle 4 inches long and 2 inches wide?

5. $4 \times 2 = ?$

6. 2 is what part of 8?

7. What is the area of a rectangle 4 inches long and 3 inches wide?

8. $4 \times 3 = ?$

9. 3 is what part of 12?

10. What is the area of a rectangle which is 4 inches long and 4 inches wide?

11. $4 \times 4 = ?$

12. 4 is what part of 16?

13. What is the area of a rectangle which is 5 inches long and 4 inches wide?

14. $4 \times 5 = ?$

15. 5 is what part of 20 ?

16. What is the area of a rectangle which is 6 inches long and 4 inches wide ?

17. $4 \times 6 = ?$

18. 6 is what part of 24 ?

19. What is the area of a rectangle which is 7 inches long and 4 inches wide ?

20. $4 \times 7 = ?$

21. 7 is what part of 28 ?

22. What is the area of a rectangle which is 8 inches long and 4 inches wide ?

23. $4 \times 8 = ?$

24. 8 is what part of 32 ?

25. What is the area of a rectangle which is 9 inches long and 4 inches wide ?

26. $4 \times 9 = ?$

27. 9 is.what part of 36 ?

28. What is the area of a rectangle which is 10 inches long and 4 inches wide?

29. $10 \times 4 = ?$

30. 10 is what part of 40 ?

ORAL AND WRITTEN EXERCISE.

54. 1. 3 is $\frac{1}{4}$ of what number ?

2.   9 is $\frac{1}{4}$ of what number ?

3. 7 is $\frac{1}{4}$ of what number?

4. 10 is $\frac{1}{4}$ of what number?

5. 2 is $\frac{1}{4}$ of what number?

6. 4 is $\frac{1}{4}$ of what number?

7. 8 is $\frac{1}{4}$ of what number?

8. 6 is $\frac{1}{4}$ of what number?

9. 5 is $\frac{1}{4}$ of what number?

10. 1 is $\frac{1}{4}$ of what number?

11. $4 \times 5 = ?$	18. $4 \times 9 = ?$	25. $\frac{1}{4}$ of $40 = ?$
12. $4 \times 8 = ?$	19. $4 \times 4 = ?$	26. $\frac{1}{4}$ of $4 = ?$
13. $4 \times 2 = ?$	20. $4 \times 1 = ?$	27. $\frac{1}{4}$ of $12 = ?$
14. $4 \times 10 = ?$	21. $\frac{1}{4}$ of $16 = ?$	28. $\frac{1}{4}$ of $36 = ?$
15. $4 \times 7 = ?$	22. $\frac{1}{4}$ of $8 = ?$	29. $\frac{1}{4}$ of $28 = ?$
16. $4 \times 3 = ?$	23. $\frac{1}{4}$ of $24 = ?$	30. $\frac{1}{4}$ of $20 = ?$
17. $4 \times 6 = ?$	24. $\frac{1}{4}$ of $32 = ?$	

55. 1. A gallon is how many quarts?

2. A quart is what part of a gallon?

3. 5 gallons are how many quarts?

4. 24 quarts are how many gallons?

5. At 20 cents a gallon, what is the cost of a quart of milk?

6. A bushel is how many pecks?

7. A peck is what part of a bushel?

8. 8 bushels are how many pecks?

9. 40 pecks are how many bushels?

10. 4 gals. 2 qts. = —— qts.

6

11. 9 gals. 3 qts. = —— qts.
12. 6 gals. 1 qt. = —— qts.
13. 7 gals. 3 qts. = —— qts.
14. 3 bu. 3 pks. = —— pks.
15. 8 bu. 2 pks. = —— pks.
16. 5 bu. 2 pks. = —— pks.
17. 9 bu. 1 pks. = —— pks.

56. 1. Beginning with 4, say the multiples of 4 to 40.

2. Subtract from each of these numbers the nearest multiple of 4 which is smaller than the number:

11	15	38	7	13	29	6	23	25
19	35	26	33	39	17	37	10	34
22	5	30	21	9	27	14	18	31

3. What remainders may we have in dividing by 4?

4. $30 \div 4 = ?$ $22 \div 4 = ?$ $18 \div 4 = ?$

5. $21 \div 4 = ?$ $5 \div 4 = ?$ $9 \div 4 = ?$

6. $27 \div 4 = ?$ $31 \div 4 = ?$ $14 \div 4 = ?$

7. $19 \div 4 = ?$ $26 \div 4 = ?$ $33 \div 4 = ?$

8. $35 \div 4 = ?$ $17 \div 4 = ?$ $10 \div 4 = ?$

9. $39 \div 4 = ?$ $34 \div 4 = ?$ $37 \div 4 = ?$

10. $15 \div 4 = ?$ $7 \div 4 = ?$ $29 \div 4 = ?$

11. $25 \div 4 = ?$ $6 \div 4 = ?$ $13 \div 4 = ?$

12. $23 \div 4 = ?$ $38 \div 4 = ?$ $11 \div 4 = ?$

13. How many gallon measures can be filled from 25 quarts of milk, and what will be left?

14. How many bushel baskets can be filled from 18 pecks of potatoes, and what will be left?

15. 14 qts. = —— gals. —— qts.

16. 30 qts. = —— gals. —— qts.

17. 18 qts. = —— gals. —— qts.

18. 27 qts. = —— gals. —— qts.

19. 37 pks. = —— bu. —— pks.

20. 22 pks. = —— bu. —— pks.

21. 35 pks. = —— bu. —— pks.

22. 11 pks. = —— bu. —— pks.

23. 31 pks. = —— bu. —— pks.

24. 27 pks. = —— bu. —— pks.

25. At the rate of 4 miles an hour, how many hours would it take a horse to travel 28 miles?

26. At 4 cents each, how many tops can be bought for 23 cents?

27. How many rectangles 4 inches long and 1 inch wide can be cut from a rectangle 8 inches long and 4 inches wide?

28. How many 4-inch sticks can be cut from a 29-inch stick?

29. How many rectangles 4 inches long and 1 inch wide can be laid with 26 square inches, and what will be left?

30. How many 4-foot sticks can be cut from a 19-foot pole?

SECTION XIV.

ADDITION AND SUBTRACTION DEPENDING ON COMBINATIONS MAKING FOURTEEN.

57. 1. Think of any two numbers smaller than 10, whose sum is 14.　Think of others.

2. Add this exercise, putting in place of * the figure which will make the sums 14:

6	5	8	9	7
*	*	*	*	*
14	14	14	14	14

3. Add this exercise, putting in place of * any figure from 1 to 9:

6	5	8	9	7
*8	*9	*6	*5	*7

4. If any two numbers are added together whose ones' figures make 14, what will the answer end in?

5. Complete this table, putting any figure from 1 to 9 in place of * and the number in place of ? which will make the sums end in 4.

$$*7 + ? = \qquad *8 + ? =$$
$$*9 + ? = \qquad *5 + ? =$$
$$*6 + ? =$$

6. Write tables, adding 5, 6, 7, 8, 9, to such numbers that the sums shall end in 4.

58. 1. Subtract:

14	14	14	14	14
7	8	5	9	6

2. Subtract, putting in place of * any figure from 1 to 9:

*4	*4	*4	*4	*4
7	8	5	9	6

3. Subtract 5, 6, 7, 8, 9, from any number ending in 4.

4. Complete this table, putting in place of * any figure from 2 to 9:

$$*4 - 6 = ? \qquad *4 - 7 = ?$$
$$*4 - 9 = ? \qquad *4 - 5 = ?$$
$$*4 - 8 = ?$$

ORAL AND WRITTEN EXERCISE.

59. 1. There are 36 panes of glass in a schoolroom and 8 panes in the hall; how many panes are there in all?

2. George has 7 books and his father has 47; how many books have they both?

3. Carrie's mother is 35 years old; how old will she be in 9 years?

4. Henry started to walk 24 miles; when he had walked 9 miles, how far did he still have to go?

5. George cut a stick 8 inches long from one which was 34 inches long; how long was the piece which was left?

6. Anna spent 29 cents for paper and 5 cents for pencils; how many cents did she spend?

7. Henry had 64 cents and spent 7 cents; how many cents had he left?

8. Jessie is 6 years old and her mother is 34 years old: how much older is Jessie's mother than Jessie?

9. John's father is 54 years old and his uncle is 5 years younger; how old is his uncle?

10. A man had 88 books and bought 6 more; how many books had he then?

11. Make problems for 94 − 7; 74 − 9; 78 + 6; 45 + 9.

ORAL AND WRITTEN EXERCISE.

60. 1. Add:

a	b	c	d	e	f	g	h	i
5	9	9	8	8	6	8	7	9
9	5	1	9	9	9	2	8	1
2	9	9	4	4	3	8	9	6
6	2	3	1	7	5	3	3	2
*3	*8	*2	*8	*3	*4	*3	*1	*5

2.
a	b	c	d	e	f	g	h	i
5	9	9	8	3	8	6	6	8
8	7	8	6	7	1	2	3	9
9	3	7	8	8	1	7	7	2
1	1	4	6	1	9	2	6	3
*1	*9	*3	*4	*2	*1	*2	*1	*7

3.	a	b	c	d	e	f	g	h	i
	7	6	8	7	8	6	8	4	6
	1	2	3	3	3	4	6	6	8
	5	8	8	5	6	6	8	5	4
	3	1	1	2	4	3	4	1	6
	*4	*4	*3	*6	*1	*5	*2	*5	*2

4.	a	b	c	d	e	f	g	h	i
	5	4	5	5	9	7	6	7	3
	4	7	7	5	7	9	5	4	6
	6	3	7	9	5	3	2	6	7
	5	4	5	2	2	4	3	5	2
	*1	*5	*5	*1	*7	*4	*6	*2	*4

5.	a	b	c	d	e	f	g	h	i
	7	9	5	9	6	2	7	7	4
	2	9	6	9	8	5	4	9	5
	7	5	4	4	6	6	4	5	5
	2	7	5	8	8	7	1	4	1
	*3	*2	*3	*1	*2	*1	*6	*6	*7

6.	a	b	c	d	e	f	g
	25	16	19	16	17	14	25
	18	14	11	24	12	16	18
	13	18	26	16	15	27	17
	29	26	19	14	18	18	17
	11	25	14	27	16	12	27

7.

a	b	c	d	e	f	g
25	15	13	16	17	15	25
18	18	23	16	24	15	17
15	26	19	24	15	27	13
28	15	13	19	17	12	26
13	19	17	23	16	19	16

8. Add the lowest number as a whole:

a	b	c	d	e	f	g
7	8	8	9	4	9	7
6	9	9	8	9	9	9
8	2	8	4	8	8	3
7	5	6	9	4	6	7
33	56	37	62	68	38	54

9.

a	b	c	d	e	f	g
8	5	8	9	8	9	8
3	8	7	9	6	8	9
6	7	6	9	9	9	5
3	4	6	9	3	8	2
79	39	44	45	48	55	68

10. Make problems for these examples:

a	b	c	d	e	f	g
19	14	18	18	19	19	16
19	25	19	17	18	25	17
12	15	11	14	14	17	19
14	17	25	15	11	15	18
26	25	15	28	19	17	14

SECTION XV.

MULTIPLICATION AND DIVISION. — FIVES.

61. 1. Add 5's to 50.

 2. $2 \times 5 = ?$ 5. $6 \times 5 = ?$ 8. $7 \times 5 = ?$

 3. $4 \times 5 = ?$ 6. $5 \times 5 = ?$ 9. $10 \times 5 = ?$

 4. $3 \times 5 = ?$ 7. $8 \times 5 = ?$ 10. $9 \times 5 = ?$

11. 10 is how many 5's? 16. 30 is how many 5's?

12. 20 is how many 5's? 17. 45 is how many 5's?

13. 15 is how many 5's? 18. 40 is how many 5's?

14. 25 is how many 5's? 19. 50 is how many 5's?

15. 35 is how many 5's?

20. $30 \div 5 = ?$ $45 \div 5 = ?$ $40 \div 5 = ?$

   $20 \div 5 = ?$ $10 \div 5 = ?$ $35 \div 5 = ?$

   $15 \div 5 = ?$ $25 \div 5 = ?$ $50 \div 5 = ?$

21. 5 is what part of 10? 30. 5 is $\frac{1}{2}$ of what number?

22. 5 is what part of 15? 31. 5 is $\frac{1}{8}$ of what number?

23. 5 is what part of 20? 32. 5 is $\frac{1}{4}$ of what number?

24. 5 is what part of 25? 33. 5 is $\frac{1}{7}$ of what number?

25. 5 is what part of 30? 34. 5 is $\frac{1}{6}$ of what number?

26. 5 is what part of 35? 35. 5 is $\frac{1}{3}$ of what number?

27. 5 is what part of 40? 36. 5 is $\frac{1}{9}$ of what number?

28. 5 is what part of 45? 37. 5 is $\frac{1}{5}$ of what number?

29. 5 is what part of 50? 38. 5 is $\frac{1}{10}$ of what number?

62. 1. What is the area of a rectangle 5 inches long and 1 inch wide?

2. $5 \times 1 = ?$

3. 1 is what part of 5?

4. What is the area of a rectangle 5 inches long and 2 inches wide?

5. $5 \times 2 = ?$

6. 2 is what part of 10?

7. What is the area of a rectangle 5 inches long and 3 inches wide?

8. $5 \times 3 = ?$

9. 3 is what part of 15?

10. What is the area of a rectangle 5 inches long and 4 inches wide?

11. $5 \times 4 = ?$

12. 4 is what part of 20?

13. What is the area of a rectangle 5 inches long and 5 inches wide?

14. $5 \times 5 = ?$

15. 5 is what part of 25?

16. What is the area of a rectangle 6 inches long and 5 inches wide?

17. $5 \times 6 = ?$

18. 6 is what part of 30?

19. What is the area of a rectangle 7 inches long and 5 inches wide?

20. $5 \times 7 = ?$

21. 7 is what part of 35?

22. What is the area of a rectangle 8 inches long and 5 inches wide?

23. $5 \times 8 = ?$

24. 8 is what part of 40?

25. What is the area of a rectangle 9 inches long and 5 inches wide?

26. $5 \times 9 = ?$

27. 9 is what part of 45?

28. What is the area of a rectangle 10 inches long and 5 inches wide?

29. $5 \times 10 = ?$

30. 10 is what part of 50?

ORAL AND WRITTEN EXERCISE.

63. 1. 9 is $\frac{1}{5}$ of what number?

2. 3 is $\frac{1}{5}$ of what number?

3. 7 is $\frac{1}{5}$ of what number?

4. 2 is $\frac{1}{5}$ of what number?

5. 5 is $\frac{1}{5}$ of what number?

6. 10 is $\frac{1}{5}$ of what number?

7. 8 is $\frac{1}{5}$ of what number?

8. 6 is $\frac{1}{5}$ of what number?

9. 1 is $\frac{1}{5}$ of what number?

10. 4 is $\frac{1}{5}$ of what number?

11. $5 \times 6 = ?$ $5 \times 2 = ?$
12. $5 \times 1 = ?$ $5 \times 9 = ?$
13. $5 \times 8 = ?$ $5 \times 4 = ?$
14. $5 \times 10 = ?$ $5 \times 5 = ?$
15. $5 \times 3 = ?$ $5 \times 7 = ?$
16. $\frac{1}{5}$ of $40 = ?$ 21. $\frac{1}{5}$ of $5 = ?$
17. $\frac{1}{5}$ of $25 = ?$ 22. $\frac{1}{5}$ of $35 = ?$
18. $\frac{1}{5}$ of $15 = ?$ 23. $\frac{1}{5}$ of $20 = ?$
19. $\frac{1}{5}$ of $10 = ?$ 24. $\frac{1}{5}$ of $45 = ?$
20. $\frac{1}{5}$ of $50 = ?$ 25. $\frac{1}{5}$ of $30 = ?$

64. 1. At what time does school begin in the morning?

2. At what time does it close?

3. How many hours long is the morning session?

4. How long is the time from 9 o'clock till 10?

5. How long is the time from 12 o'clock till 2?

6. What does the picture on page 93 represent?

7. What is a clock for?

8. How many pointers or hands has it?

9. How do they compare in length?

10. What do the letters represent?

11. At 12 o'clock where are the hands?

12. At 1 o'clock where are the hands?

13. Over how many spaces has the long hand travelled since 12? the short hand?

14. At 2 o'clock where are the hands?

15. Over how many spaces has the long hand travelled since 1 ? the short hand ?

16. Over how many spaces does the long hand travel every hour ? the short hand ?

17. When the clock strikes the hour, where is the long hand ? the short hand ?

Because the short hand points to the hour, it is called the *hour hand.*

18. Draw a clock face showing 9 o'clock ; 7 o'clock ; any other hour.

19. When the long hand has reached III, over what part of the circle has it travelled ?

When the long hand is at III, it is *quarter past* the hour which the hour hand has just left.

20. Draw clock faces showing quarter past any hour.

21 When the long hand has reached VI, over what part of the circle has it travelled ?

When the long hand is at VI, it is *half past* the hour which the hour hand last left.

22. Draw clock faces showing half past any hour.

23. When the long hand is at IX, over what part of the circle has it travelled?

24. Over what part of the circle must it go before the next hour?

When the long hand is at IX, it is *quarter of* the hour which the hour hand will reach next.

25. Draw clock faces showing quarter of any hour.

26. How long does it take the long hand to go from one number to another?

When the long hand has gone from XII to I, it is *five minutes past* the hour.

27. How many minutes past the hour is it when the long hand is at II? III? IIII? V?

Because the long hand shows how many minutes it is past the hour, it is called the *minute hand.*

28. When the minute hand is at XI, how far must it go before the next hour?

When the minute hand is at XI, it is *five minutes of* the hour which the hour hand will reach next.

29. How many minutes of the hour is it when the minute hand is at X? IX? VIII? VII?

30. A quarter hour is how many minutes? a half hour? a whole hour?

65. 1. Beginning with 5, say the multiples of 5 to 50.

2. Subtract from each of these numbers the nearest multiple of 5 smaller than the number:

6	48	18	12	19	42	11	28	9
29	33	8	46	47	17	36	41	27
44	14	43	39	22	24	21	16	49
23	37	31	26	38	32	7	34	13

3. What remainders may we have in dividing by 5?

4. Why can we have none larger than 4?

5. $6 \div 5 = ?$ $29 \div 5 = ?$ $44 \div 5 = ?$ $23 \div 5 = ?$

6. $48 \div 5 = ?$ $33 \div 5 = ?$ $14 \div 5 = ?$ $37 \div 5 = ?$

7. $18 \div 5 = ?$ $8 \div 5 = ?$ $43 \div 5 = ?$ $31 \div 5 = ?$

8. $12 \div 5 = ?$ $46 \div 5 = ?$ $39 \div 5 = ?$ $26 \div 5 = ?$

9. $19 \div 5 = ?$ $47 \div 5 = ?$ $22 \div 5 = ?$ $38 \div 5 = ?$

10. $42 \div 5 = ?$ $17 \div 5 = ?$ $24 \div 5 = ?$ $32 \div 5 = ?$

11. $11 \div 5 = ?$ $36 \div 5 = ?$ $21 \div 5 = ?$ $7 \div 5 = ?$

12. $28 \div 5 = ?$ $41 \div 5 = ?$ $16 \div 5 = ?$ $34 \div 5 = ?$

13. $9 \div 5 = ?$ $27 \div 5 = ?$ $49 \div 5 = ?$ $13 \div 5 = ?$

14. At 5 cents each, how many street car rides can you take for 30 cents?

15. How many 5-cent pieces are equal in value to a dime?

16. How many 5-cent pieces are equal in value to a 25-cent piece?

17. How many 5-cent pieces are equal in value to a 50-cent piece?

18. If 3 men can do a piece of work in 5 days, how long will it take 1 man to do it?

19. If 5 persons can be seated on 1 bench, how many benches are needed to seat 45 persons?

20. $\frac{1}{8}$ of George's marbles is 5; how many marbles has he?

21. At the rate of 5 miles an hour, how many hours would it take a boy to ride 25 miles?

22. At the rate of 5 miles an hour, how far would a boy ride in 7 hours?

23. If a boy rides 40 miles in 8 hours, how far does he ride each hour at the same rate?

24. If a rectangle 5 inches wide contains 50 square inches, how long is it?

25. If a rectangle 8 inches long contains 40 square inches, how wide is it?

26. If a rectangle 5 inches wide contains 45 square inches, how long is it?

27. How many rectangles each 5 inches long and 1 inch wide can be laid with 38 square inches, and what will be left?

28. How many rectangles each 5 inches long and 1 inch wide can be laid with 19 square inches, and what will be left?

29. How many rectangles each 5 inches long and 1 inch wide can be laid with 23 square inches, and what will be left?

30. A square contains 25 square inches; how long and how wide is it?

SECTION XVI.

ADDITION AND SUBTRACTION DEPENDING ON COMBINATIONS MAKING 15, 16, 17, 18.

66. 1. Think of any two numbers smaller than 10 whose sum is 15. Think of others.

2. Think of any two numbers smaller than 10 whose sum is 16. Think of others.

3. Think of any two numbers smaller than 10 whose sum is 17.

4. Think of any two numbers smaller than 10 whose sum is 18.

5. Add the following, putting in place of ✱ the numbers which will make the sums as written :

6	8	9	7	7	8	9	9	8	9
✱	✱	✱	✱	✱	✱	✱	✱	✱	✱
15	15	15	15	16	16	16	17	17	18

6. Add, putting any figure from 1 to 9 in place of ✱ :

6	8	9	7	7	8	9	9	8	9
✱9	✱7	✱6	✱8	✱9	✱8	✱6	✱8	✱9	✱9

7. Complete this table putting any figure from 1 to 9 in place of ✱ and the figure in place of ? which will make the sums end in the number written.

✱6 + ? = 5	✱8 + ? = 6
✱8 + ? = 5	✱9 + ? = 6
✱9 + ? = 5	✱9 + ? = 7
✱7 + ? = 5	✱8 + ? = 7
✱7 + ? = 6	✱9 + ? = 8

67. 1. Subtract:

15	15	15	15	16	16	16	17	17	18
6	8	9	7	7	8	9	8	9	9

2. Subtract, putting any figure from 2 to 9 in place of *:

*5	*5	*5	*5	*6	*6	*6	*7	*7	*8
6	8	9	7	7	8	9	8	9	9

3. Complete this table, putting any figure from 2 to 9 in place of *.

*5 − 7 = ?	*6 − 9 = ?	*7 − 9 = ?
*5 − 9 = ?	*6 − 8 = ?	*7 − 8 = ?
*5 − 8 = ?	*6 − 7 = ?	*8 − 9 = ?
*5 − 6 = ?		

Add these examples from the bottom upward, first as they are written, then putting any figure from 1 to 8 in place of *, and adding the lowest number as a whole:

4.
a	b	c	d	e	f	g	h	i
4	4	5	7	3	7	8	5	8
8	7	6	4	1	2	2	7	5
*2	*1	*1	*6	*7	*4	*3	*2	*3

5.
a	b	c	d	e	f	g	h	i
3	9	4	9	5	6	7	6	6
8	2	2	4	1	3	5	6	5
*1	*1	*7	*4	*5	*6	*2	*2	*1

6.
a	b	c	d	e	f	g	h	i
8	9	7	7	5	7	8	9	4
4	5	4	1	2	3	4	2	1
*5	*5	*1	*3	*6	*5	*2	*2	*6

7.	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
	5	9	6	1	8	8	8	9	9
	3	3	1	1	4	6	1	5	3
	*7	*4	*4	*9	*3	*4	*2	*4	*3

8.	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
	3	9	6	6	2	9	7	8	2
	2	3	2	7	1	1	6	3	9
	*8	*2	*5	*3	*8	*1	*3	*1	*1

[NOTE: Every possible combination of endings occurs in these examples.]

Subtract the following, putting any figure from 1 to 9 in place of *.

9.	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
	*0	*2	*0	*2	*0	*2	*0	*4	*1
	2	8	9	7	5	3	8	7	6

10.	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
	*6	*1	*3	*1	*1	*4	*0	*2	*6
	7	2	8	7	9	·8	4	6	8

11.	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
	*4	*2	*0	*2	*3	*1	*5	*1	*0
	6	5	1	9	6	5	8	4	6

12.	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
	*8	*5	*3	*0	*6	*7	*3	*2	*1
	9	7	9	3	9	8	7	4	8

| 13.	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
	*5	*3	*0	*5	*1	*7	*4	*4	*3
	6	4	7	9	3	9	5	9	5

SECTION XVII.

WRITTEN SUBTRACTION.

68. 1. Lay 45 in tens and ones. Take away 32, beginning with the ones.
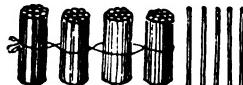
Recite: 2 ones from 5 ones leaves 3 ones; 3 tens from 4 tens leaves 1 ten; answer 13.

2. Lay 37 in tens and ones. Take away 24.

3. Lay 48 in tens and ones. Take away 25.

4. Lay 99 in tens and ones. Take away 36.

5. Write 67. Write 43 under it. Subtract as with the counters, beginning with the ones.

6. Subtract :

a	*b*	*c*	*d*	*e*	*f*
86	94	39	93	49	68
61	31	16	61	13	16

7.	a	b	c	d	e	f
	85	96	57	75	69	58
	14	55	31	63	55	41

8.	a	b	c	d	e	f
	79	58	96	69	97	85
	64	13	23	32	46	31

9.	a	b	c	d	e	f
	84	72	89	27	48	98
	43	41	77	14	34	77

10.	a	b	c	d	e	f
	38	76	79	97	67	83
	22	34	51	15	43	22

11.	a	b	c	d	e	f
	67	49	58	85	94	76
	22	28	25	52	82	22

12. Henry had 96 cents and spent 45; how many cents had he left?

13. A grocer sold 24 bananas from a bunch containing 89 bananas; how many were left?

14. Make problems for 87 — 33; 93 — 21.

69. Lay 32 in tens and ones. We wish to take away 19, beginning with the 9 ones. What shall we

put with the 2 ones so that we may take away the 9? Where shall we get it? How many tens will be left? 9 ones from 12 ones leaves what? 1 ten from 2 tens leaves what? 19 from 32 leaves what?

1. Lay 46 in tens and ones. Take away 28.

Recite: 8 ones from 16 ones leaves 8 ones; 2 tens from 3 tens leaves 1 ten. Answer 18.

2. Lay 52. Take away 37.   4. Lay 63. Take away 25.

3. Lay 75. Take away 49. -   5. Lay 42. Take away 14.

6. Write 42. Write 14 under it. Subtract as with the counters, beginning with the ones.

[NOTE: Pupils do not need to use the word "borrow" or cross off any figures. Failure to understand should be enlightened by the counters or by illustration.]

7. Subtract:

	a	b	c	d	e	f	g	h	i
	80	65	83	74	34	51	96	90	41
	64	28	17	15	17	16	28	56	18

8.

	a	b	c	d	e	f	g	h	i
	73	60	92	76	54	58	65	41	52
	15	12	18	47	16	29	46	12	35

9.

	a	b	c	d	e	f	g	h	i
	92	50	75	80	91	83	46	81	82
	79	23	39	35	49	26	29	23	53

10.

	a	b	c	d	e	f	g	h	i
	60	94	31	87	47	92	71	72	94
	18	28	15	48	29	36	24	54	19

11.	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*
	95	· 63	50	83	70	73	60	62	81
	67	34	39	18	21	39	37	27	37

12. John rode 75 miles and walked 18 miles; how much farther did he ride than walk?

13. On one bunch there are 80 bananas and on another bunch there are 66; how many more bananas are on the first bunch than on the second?

14. Mr. Jones had 60 sheep and sold 18 of them; how many sheep had he left?
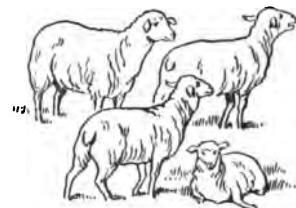
15. Jessie had 75 cents and paid 38 cents for a book; how many cents had she left?

16. A lady is 28 years old and her father is 54 years old; what is the difference in their ages?

17. In one school are 63 pupils and in another school are 48 pupils; how many more pupils are in the first school than in the second?

18. A man traveled 75 miles one day and 58 miles the next day; how much farther did he travel the first day than the second?

19. A railroad train goes 54 miles an hour and another train goes 35 miles an hour; how much farther does the first train go than the second?

20. Make problems for 96 — 49; 67 — 38; the difference between 82 and 56.

SECTION XVIII.

REVIEW.

ORAL EXERCISE.

70. 1. George walked 2 miles and Henry walked 4 times as far; how far did Henry walk?

2. Walter changed a 10-dollar bill for its value in half-dollars; how many half dollars did he receive?

3. James sold 16 pints of milk; how many quarts did he sell?

4. Jesse had 12 marbles and gave away $\frac{1}{2}$ of them; how many did he give away?

5. A lady divided 14 apples equally among 7 children; how many apples did each child receive?

6. 5 quarts of milk are how many pints?

7. At 2 dollars each, how many chairs can be bought for 18 dollars?

8. 2 is what part of 4? of 6? of 8? of 10? of 12? of 14? of 16? of 18? of 20?

9. If you can buy 3 marbles for 1 cent, how many marbles can you buy for 6 cents?

10. How many wheels have 9 tricycles?

11. At 3 cents each, how many pencils can be bought for 30 cents?

12. If 3 slates cost 12 cents, what is the cost of each one?

13. If $\frac{1}{8}$ of a pound of paper cost 3 cents, what is the cost of a pound?

14. If each of 7 girls owns 3 dolls, how many dolls do they all own?

15. How many 3-dollar hats can be bought for 15 dollars?

16. 3 is what part of 6? of 9? of 12? of 15? of 18? of 21? of 24? of 27? of 30?

17. What is the area of a square 4 inches long and 4 inches wide?

18. What is the area of a rectangle 7 inches long and 4 inches wide?

19. How many rectangles 4 inches long and 1 inch wide can be cut from a rectangle 10 inches long and 4 inches wide?

20. How many square inches are in $\frac{1}{3}$ of a rectangle 9 inches long and 4 inches wide?

21. How many quarts are there in 8 gallons?

22. At 6 cents a quart, how many quarts of milk can be bought for 24 cents?

23. 4 is what part of 8? of 12? of 16? of 20? of 24? of 28? of 32? of 36? of 40?

24. If 5 persons can be seated on one bench, how many persons can be seated on 10 benches?

25. If 6 melons cost 30 cents, what is the cost of 1 melon?

26. How many street car rides at 5 cents each can you take for 35 cents?
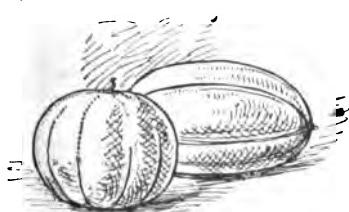
27. How many benches are needed to seat 25 persons if 5 persons can be seated on each bench?

28. If 40 persons can be seated on 8 benches, how many can be seated on each one?

29. At 5 cents apiece, what is the cost of 9 pictures?

30. 5 is what part of 10? of 15? of 20? of 25? of 30? of 35? of 40? of 45? of 50?

ORAL AND WRITTEN EXERCISE.

71.

1. $8 \times 2 = ?$ $5 \times 9 = ?$ $5 \times 1 = ?$ $4 \times 8 = ?$
    $2 \times 5 = ?$ $6 \times 3 = ?$ $4 \times 4 = ?$ $3 \times 10 = ?$
    $3 \times 1 = ?$ $4 \times 2 = ?$ $2 \times 2 = ?$ $7 \times 3 = ?$

2. $4 \times 9 = ?$ $10 \times 5 = ?$ $3 \times 8 = ?$ $5 \times 8 = ?$
    $2 \times 10 = ?$ $5 \times 3 = ?$ $6 \times 4 = ?$ $4 \times 5 = ?$
    $9 \times 2 = ?$ $2 \times 6 = ?$ $5 \times 5 = ?$ $9 \times 3 = ?$

3. $7 \times 4 = ?$ $6 \times 5 = ?$ $2 \times 7 = ?$ $3 \times 4 = ?$
    $2 \times 3 = ?$ $2 \times 1 = ?$ $5 \times 7 = ?$ $10 \times 2 = ?$
    $9 \times 5 = ?$ $3 \times 7 = ?$ $2 \times 4 = ?$ $3 \times 6 = ?$

4. $3 \times 3 = ?$ $5 \times 4 = ?$ $8 \times 5 = ?$ $2 \times 9 = ?$
    $5 \times 10 = ?$ $3 \times 2 = ?$ $10 \times 4 = ?$ $10 \times 3 = ?$
    $4 \times 6 = ?$ $3 \times 5 = ?$ $4 \times 3 = ?$ $4 \times 1 = ?$

5. $4 \times 7 = ?$ $4 \times 10 = ?$ $7 \times 2 = ?$ $8 \times 3 = ?$
    $6 \times 2 = ?$ $2 \times 8 = ?$ $9 \times 4 = ?$ $5 \times 6 = ?$
    $8 \times 4 = ?$ $3 \times 9 = ?$ $5 \times 2 = ?$ $7 \times 5 = ?$

6. $25 \div 5 = ?$ $21 \div 3 = ?$ $12 \div 2 = ?$ $8 \div 2 = ?$
$40 \div 8 = ?$ $16 \div 8 = ?$ $30 \div 5 = ?$ $15 \div 5 = ?$

7. $27 \div 3 = ?$ $18 \div 9 = ?$ $45 \div 5 = ?$ $24 \div 6 = ?$
$20 \div 5 = ?$ $4 \div 2 = ?$ $28 \div 7 = ?$ $36 \div 4 = ?$

8. $9 \div 3 = ?$ $35 \div 5 = ?$ $10 \div 5 = ?$ $30 \div 6 = ?$
$12 \div 4 = ?$ $40 \div 10 = ?$ $20 \div 2 = ?$ $6 \div 3 = ?$

9. $27 \div 9 = ?$ $18 \div 2 = ?$ $10 \div 2 = ?$ $24 \div 4 = ?$
$36 \div 9 = ?$ $40 \div 4 = ?$ $12 \div 6 = ?$ $21 \div 7 = ?$

10. $50 \div 10 = ?$ $14 \div 2 = ?$ $20 \div 10 = ?$ $28 \div 4 = ?$
$35 \div 7 = ?$ $8 \div 4 = ?$ $15 \div 3 = ?$ $45 \div 9 = ?$

11. $32 \div 4 = ?$ $24 \div 8 = ?$ $30 \div 3 = ?$ $12 \div 3 = ?$
$16 \div 2 = ?$ $40 \div 5 = ?$ $18 \div 3 = ?$ $20 \div 4 = ?$

12. $6 \div 2 = ?$ $24 \div 3 = ?$ $30 \div 10 = ?$ $18 \div 6 = ?$
$50 \div 5 = ?$ $14 \div 7 = ?$ $16 \div 4 = ?$ $32 \div 8 = ?$

13. Divide these numbers by 2 :

3	11	9
7	19	17
13	15	5

14. Divide these numbers by 3 :

7	23	11
10	26	19
8	4	5

15.   25   16   29
             22   14   20
             13   17   28

16. Divide these numbers by 4:
             13   38   6
             11   7   23
             15   29   25

17.   19   33   37
             35   39   10
             26   17   34

18.   22   21   14
              5   9   18
             30   27   31

19. Divide these numbers by 5:
              6   12   11
             48   19   28
             18   42   9

20.   29   46   36
             33   ·47   41
              8   17   27

21.   44   39   21
             14   22   16
             43   24   49

22.   23   26   7
             37   38   34
             31   32   13

WRITTEN EXERCISE.

[NOTE: Put any figure from 2 to 10 in place of �✳ and fill blanks.]

72. 1. ✳ quarts equal —— pints.

2. ✳ gallons equal —— quarts.

3. ✳ bushels equal —— pecks.

4. ✳ triangles have —— sides.

5. ✳ hands have —— fingers.

6. ✳ squares have —— sides.

7. ✳ clover leaves have —— leaflets.

8. ✳ dollars equal —— quarter dollars.

9. ✳ circles equal —— semi-circles.

10. ✳ feet have —— toes.

11. ✳ tricycles have —— wheels.

12. ✳ maple leaves have —— fingers.

13. ✳ wagons have —— wheels.

14. ✳ bicycles have —— wheels.

15. If there are 62 pupils in one school and 37 pupils in another school, how many more pupils are in the first school than in the second?

16. If Jessie had 75 cents and spent 48 cents, how many cents had she left?

17. What is the difference between 39 and 84?

18. A man cut a pole 25 ft. long from one which was 60 ft. long; how long was the piece which was left?

19. What is the difference between 92 and 45?

20. Subtract:

74	65	93	59	86
28	29	36	37	49

83	49	57	88	82
36	25	29	23	45

21. In one class are 14 pupils, in another 18, in another 29, in another 15, and in another 18; how many pupils are in all the classes.

22. A bookcase contains 5 shelves. On one shelf are 18 books, on another 15, on another 19, on another 27, and on another 14; how many books are in the case?

23. A boy rode on his bicycle 17 miles one day, 16 miles the next, 17 miles the next, 19 miles the next, and 29 miles the next; how far did he ride in all?

24. A farmer has 16 cows, 28 hens, 19 sheep, 17 pigs, and 18 oxen; how many animals has he?

25. Add:

24	14	13	17	15
18	16	18	16	14
19	17	29	15	17
16	15	19	18	27
18	27	18	28	19

SECTION XIX.

MULTIPLICATION AND DIVISION.

SIXES.

73. 1. Add 6's to 60.

2. $2 \times 6 = ?$

3. $4 \times 6 = ?$

4. $3 \times 6 = ?$

5. $5 \times 6 = ?$

6. $7 \times 6 = ?$

7. $6 \times 6 = ?$

8. $9 \times 6 = ?$

9. $8 \times 6 = ?$

10. $10 \times 6 = ?$

11. $12 \div 6 = ?$

12. $24 \div 6 = ?$

13. $36 \div 6 = ?$

14. $18 \div 6 = ?$

15. $30 \div 6 = ?$

16. $42 \div 6 = ?$

17. $60 \div 6 = ?$

18. $48 \div 6 = ?$

19. $54 \div 6 = ?$

20. 6 is what part of 12 ?

21. 6 is what part of 18 ?

22. 6 is what part of 24 ?

23. 6 is what part of 30 ?

24. 6 is what part of 36 ?

25. 6 is what part of 42 ?

26. 6 is what part of 48 ?

27. 6 is what part of 54 ?

28. 6 is what part of 60 ?

29. 6 is $\frac{1}{3}$ of what number ?

30. 6 is $\frac{1}{5}$ of what number ?

31. 6 is $\frac{1}{4}$ of what number ?

32. 6 is $\frac{1}{2}$ of what number ?

33. 6 is $\frac{1}{7}$ of what number ?

34. 6 is $\frac{1}{9}$ of what number ?

35. 6 is $\frac{1}{10}$ of what number ?

36. 6 is $\frac{1}{8}$ of what number ?

37. 6 is $\frac{1}{5}$ of what number ?

74. 1. $6 \times 1 = ?$ $6 \times 3 = ?$ $6 \times 5 = ?$
 $6 \times 2 = ?$ $6 \times 4 = ?$ $6 \times 6 = ?$

2. $6 \times 7 = ?$ $6 \times 8 = ?$ $6 \times 9 = ?$ $6 \times 10 = ?$

3. 1 is $\frac{1}{6}$ of what number?   8. 6 is $\frac{1}{6}$ of what number?

4. 2 is $\frac{1}{6}$ of what number?   9. 7 is $\frac{1}{6}$ of what number?

5. 3 is $\frac{1}{6}$ of what number?   10. 8 is $\frac{1}{6}$ of what number?

6. 4 is $\frac{1}{6}$ of what number?   11. 9 is $\frac{1}{6}$ of what number?

7. 5 is $\frac{1}{6}$ of what number?   12. 10 is $\frac{1}{6}$ of what number?

13. $\frac{1}{6}$ of 12 = ?   16. $\frac{1}{6}$ of 48 = ?   19. $\frac{1}{6}$ of 18 = ?
14. $\frac{1}{6}$ of 24 = ?   17. $\frac{1}{6}$ of 60 = ?   20. $\frac{1}{6}$ of 36 = ?
15. $\frac{1}{6}$ of 30 = ?   18. $\frac{1}{6}$ of 54 = ?   21. $\frac{1}{6}$ of 42 = ?

22. $\frac{1}{6}$ of 6 = ?

75. 1. Beginning with 6, say the multiples of 6 to 60.

2. What remainders may we have in dividing by 6?

Subtract from each of these numbers the nearest multiple of 6 smaller than the number:

(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
7	31	55	11	57	8	33	53	50
16	28	32	58	45	56	10	20	23
59	43	26	44	35	25	39	41	40
37	34	14	9	29	19	47	51	21
13	49	46	27	38	15	17	22	52

12. $13 \div 6 = ?$ $34 \div 6 = ?$ $59 \div 6 = ?$
 $16 \div 6 = ?$ $7 \div 6 = ?$

13. $37 \div 6 = ?$ $49 \div 6 = ?$ $28 \div 6 = ?$
$31 \div 6 = ?$ $43 \div 6 = ?$

14. $46 \div 6 = ?$ $9 \div 6 = ?$ $26 \div 6 = ?$
$58 \div 6 = ?$ $55 \div 6 = ?$

15. $27 \div 6 = ?$ $14 \div 6 = ?$ $44 \div 6 = ?$
$32 \div 6 = ?$ $11 \div 6 = ?$

16. $38 \div 6 = ?$ $19 \div 6 = ?$ $35 \div 6 = ?$
$56 \div 6 = ?$ $57 \div 6 = ?$

17. $8 \div 6 = ?$ $45 \div 6 = ?$ $25 \div 6 = ?$
$29 \div 6 = ?$ $15 \div 6 = ?$

18. $39 \div 6 = ?$ $17 \div 6 = ?$ $47 \div 6 = ?$
$33 \div 6 = ?$ $10 \div 6 = ?$

19. $53 \div 6 = ?$ $23 \div 6 = ?$ $41 \div 6 = ?$
$52 \div 6 = ?$ $22 \div 6 = ?$

20. $21 \div 6 = ?$ $5I \div 6 = ?$ $40 \div 6 = ?$
$20 \div 6 = ?$ $50 \div 6 = ?$

ORAL EXERCISE.

76. 1. How many rectangles 6 inches long and 1 inch wide can be cut from a rectangle 8 inches long and 6 inches wide?

2. How many 6-inch sticks can be cut from a stick 36 inches long?

3. At 6 cents a quart, what is the cost of a gallon of milk?

4. At 6 dollars each, what is the cost of 9 chairs?

5. If a horse can travel 18 miles in 3 hours, how many miles is that an hour?

6. $\frac{1}{7}$ of John's marbles is 6; how many marbles has he?

8

7. If 60 pencils are divided into 10 equal bundles, how many pencils are in each bundle?

8. How many inches long is half a foot?

9. George bought a book for 6 cents, which was $\frac{1}{5}$ of his money; how much money had he?

10. If a woman earned 6 dollars a week, how many weeks would it take her to earn 54 dollars?

11. If $\frac{1}{5}$ of a cheese weighed 6 pounds, what was the weight of the cheese?

12. If 5 tons of coal cost 30 dollars, what is the cost of 1 ton?

13. At the rate of 6 miles an hour, how far will a boat sail in 6 hours?

14. A man divided some apples equally among 4 boys, giving each boy 6 apples; how many apples did he give away?

15. At the rate of 6 miles an hour, how many hours would it take a boat to sail 42 miles?

16. If a boat sailed 48 miles in 8 hours, how many miles an hour did it sail?

17. If $\frac{1}{4}$ of a pound of paper cost 6 cents, what is the cost of a pound?

18. If $\frac{1}{10}$ of a man's money is 6 dollars, how much money has he?

19. At 6 cents apiece, how many peaches can be bought for 30 cents?

20. If 9 chairs cost 54 dollars, what is the cost of 1 chair?
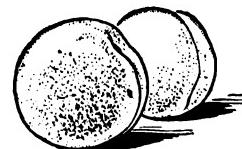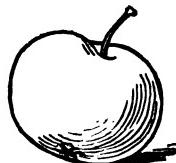
21. How many rectangles 6 inches long and 1 inch wide can be cut from a rectangle 6 inches long and 3 inches wide?

22. What is $\frac{1}{7}$ of 42 square inches?

23. If a man works 6 days a week, how many weeks would it take him to work 60 days?

24. If 6 benches just alike will hold 36 children, how many children can be seated on each bench?

SEVENS.

77. 1. Add 7's to 70.

2. $2 \times 7 = ?$

3. $4 \times 7 = ?$

4. $3 \times 7 = ?$

5. $5 \times 7 = ?$

6. $7 \times 7 = ?$

7. $6 \times 7 = ?$

8. $9 \times 7 = ?$

9. $8 \times 7 = ?$

10. $10 \times 7 = ?$

11. $14 \div 7 = ?$

12. $28 \div 7 = ?$

13. $21 \div 7 = ?$

14. $42 \div 7 = ?$

15. $35 \div 7 = ?$

16. $56 \div 7 = ?$

17. $49 \div 7 = ?$

18. $70 \div 7 = ?$

19. $63 \div 7 = ?$

20. 7 is what part of 14?

21. 7 is what part of 21?

22. 7 is what part of 28?

23. 7 is what part of 35?

24. 7 is what part of 42?

25. 7 is what part of 49?

26. 7 is what part of 56?

27. 7 is what part of 63?

28. 7 is what part of 70?

29. 7 is $\frac{1}{2}$ of what number?

30. 7 is $\frac{1}{6}$ of what number?

31. 7 is $\frac{1}{10}$ of what number?

32. 7 is $\frac{1}{3}$ of what number?

33. 7 is $\frac{1}{8}$ of what number?

34. 7 is $\frac{1}{4}$ of what number?

35. 7 is $\frac{1}{9}$ of what number?

36. 7 is $\frac{1}{5}$ of what number?

37. 7 is $\frac{1}{7}$ of what number?

78. 1. $7 \times 1 = ?$ $7 \times 3 = ?$ $7 \times 5 = ?$
$7 \times 2 = ?$ $7 \times 4 = ?$ $7 \times 6 = ?$

2. $7 \times 7 = ?$ $7 \times 8 = ?$ $7 \times 9 = ?$ $7 \times 10 = ?$

3.   1 is $\frac{1}{7}$ of what number?   8.   6 is $\frac{1}{7}$ of what number?
4.   2 is $\frac{1}{7}$ of what number?   9.   7 is $\frac{1}{7}$ of what number?
5.   3 is $\frac{1}{7}$ of what number?   10.   8 is $\frac{1}{7}$ of what number?
6.   4 is $\frac{1}{7}$ of what number?   11.   9 is $\frac{1}{7}$ of what number?
7.   5 is $\frac{1}{7}$ of what number?   12.   10 is $\frac{1}{7}$ of what number?

13. $\frac{1}{7}$ of $14 = ?$ 16. $\frac{1}{7}$ of $70 = ?$ 19. $\frac{1}{7}$ of $63 = ?$
14. $\frac{1}{7}$ of $49 = ?$ 17. $\frac{1}{7}$ of $21 = ?$ 20. $\frac{1}{7}$ of $28 = ?$
15. $\frac{1}{7}$ of $35 = ?$ 18. $\frac{1}{7}$ of $42 = ?$ 21. $\frac{1}{7}$ of $7 = ?$

22. $\frac{1}{7}$ of $56 = ?$

79. 1. How many days are there in a week?
2. How many days are there in 4 weeks?
3. 56 days are how many weeks?
4. 70 days are how many weeks?
5. 8 weeks are how many days?
6. 7 weeks and 3 days are how many days?
7. 8 weeks and 6 days are how many days?
8. 4 weeks and 3 days are how many days?
9. 5 weeks and 5 days are how many days?
10. 3 weeks and 2 days are how many days?

11. George has 7 books and Henry has 9 times as many; how many books has Henry?

12. If a bookcase contains 42 books with 7 books on each shelf, how many shelves are in the bookcase?

13. If a boat sails 35 miles in 5 hours, at what rate is that an hour?

14. At the rate of 7 miles an hour, how many hours would it take a boat to go 28 miles?

15. At the rate of 7 miles an hour, how far would a boat sail in 3 hours?

16. At the rate of 7 dollars a week for board, what must a man pay for 6 weeks' board?

17. At the rate of 7 dollars a week, how many weeks can a man board for 49 dollars?

18. How many rectangles 7 inches long and 1 inch wide can be cut from a rectangle 9 inches long and 7 inches wide?
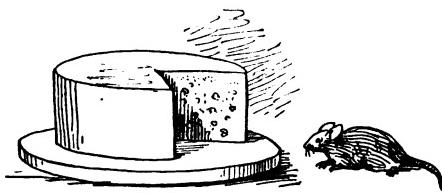
19. If $\frac{1}{2}$ of a cheese is worth 7 dollars, what is the cheese worth?

20. If $\frac{1}{4}$ of a pound of paper is worth 7 cents, what is a pound worth?

21. If 7 pencils are worth 21 cents, what is 1 pencil worth?

22. If a gallon of kerosene oil cost 28 cents, what is the cost of a quart?
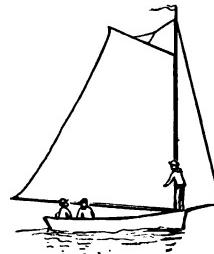
80. 1. Beginning with 7, say the multiples of 7 to 70.

2. What remainders may we have in dividing by 7?

3. Subtract from each of these numbers the nearest multiple of 7 smaller than the number:

(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
45	64	15	68	43	65	18	40	34
17	38	48	29	9	10	50	61	53
66	13	69	47	36	16	62	52	60
27	59	25	23	67	44	30	33	20
11	22	8	57	19	39	41	54	51
46	37	12	26	58	24	55	32	31

13. $27 \div 7 = ?$ $46 \div 7 = ?$ $59 \div 7 = ?$
     $37 \div 7 = ?$ $22 \div 7 = ?$ $11 \div 7 = ?$

14. $45 \div 7 = ?$ $17 \div 7 = ?$ $13 \div 7 = ?$
     $38 \div 7 = ?$ $64 \div 7 = ?$ $66 \div 7 = ?$

15. $29 \div 7 = ?$ $68 \div 7 = ?$ $47 \div 7 = ?$
     $15 \div 7 = ?$ $48 \div 7 = ?$ $69 \div 7 = ?$

16. $23 \div 7 = ?$ $57 \div 7 = ?$ $25 \div 7 = ?$
     $8 \div 7 = ?$ $12 \div 7 = ?$ $43 \div 7 = ?$

17. $65 \div 7 = ?$ $10 \div 7 = ?$ $67 \div 7 = ?$
     $26 \div 7 = ?$ $36 \div 7 = ?$ $44 \div 7 = ?$

18. $9 \div 7 = ?$ $24 \div 7 = ?$ $16 \div 7 = ?$
     $39 \div 7 = ?$ $58 \div 7 = ?$ $19 \div 7 = ?$

19. $40 \div 7 = ?$ $52 \div 7 = ?$ $33 \div 7 = ?$
     $34 \div 7 = ?$ $61 \div 7 = ?$ $60 \div 7 = ?$

20. $53 \div 7 = ?$ $50 \div 7 = ?$ $20 \div 7 = ?$
     $18 \div 7 = ?$ $62 \div 7 \div ?$ $51 \div 7 = ?$

21. $30 \div 7 = ?$ $41 \div 7 = ?$ $54 \div 7 = ?$
    $55 \div 7 = ?$ $32 \div 7 = ?$ $31 \div 7 = ?$

22. 34 days = —— weeks, —— days.
23. 61 days = —— weeks, —— days.
24. 52 days = —— weeks, —— days.
25. 20 days = —— weeks, —— days.
26. 41 days = —— weeks, —— days.

EIGHTS.

81. 1. Add 8's to 80.

2. $2 \times 8 = ?$ 8. $9 \times 8 = ?$ 14. $40 \div 8 = ?$
3. $4 \times 8 = ?$ 9. $8 \times 8 = ?$ 15. $56 \div 8 = ?$
4. $3 \times 8 = ?$ 10. $10 \times 8 = ?$ 16. $48 \div 8 = ?$
5. $6 \times 8 = ?$ 11. $16 \div 8 = ?$ 17. $64 \div 8 \div ?$
6. $5 \times 8 = ?$ 12. $32 \div 8 = ?$ 18. $80 \div 8 = ?$
7. $7 \times 8 = ?$ 13. $24 \div 8 = ?$ 19. $72 \div 8 = ?$

20. 8 is what part of 16?   29. 8 is $\frac{1}{2}$ of what number?
21. 8 is what part of 24?   30. 8 is $\frac{1}{6}$ of what number?
22. 8 is what part of 32?   31. 8 is $\frac{1}{9}$ of what number?
23. 8 is what part of 40?   32. 8 is $\frac{1}{4}$ of what number?
24. 8 is what part of 48?   33. 8 is $\frac{1}{10}$ of what number?
25. 8 is what part of 56?   34. 8 is $\frac{1}{3}$ of what number?
26. 8 is what part of 64?   35. 8 is $\frac{1}{7}$ of what number?
27. 8 is what part of 72?   36. 8 is $\frac{1}{5}$ of what number?
28. 8 is what part of 80?   37. 8 is $\frac{1}{8}$ of what number?

82. 1. $8 \times 1 = ?$ $8 \times 5 = ?$
$8 \times 2 = ?$ $8 \times 6 = ?$
$8 \times 3 = ?$ $8 \times 7 = ?$
$8 \times 4 = ?$ $8 \times 8 = ?$

2. $8 \times 9 = ?$ $8 \times 10 = ?$ 13. $\frac{1}{8}$ of $24 = ?$

3. 1 is $\frac{1}{8}$ of what number? 14. $\frac{1}{8}$ of $64 = ?$

4. 2 is $\frac{1}{8}$ of what number? 15. $\frac{1}{8}$ of $32 = ?$

5. 3 is $\frac{1}{8}$ of what number? 16. $\frac{1}{8}$ of $48 = ?$

6. 4 is $\frac{1}{8}$ of what number? 17. $\frac{1}{8}$ of $16 = ?$

7. 5 is $\frac{1}{8}$ of what number? 18. $\frac{1}{8}$ of $80 = ?$

8. 6 is $\frac{1}{8}$ of what number? 19. $\frac{1}{8}$ of $56 = ?$

9. 7 is $\frac{1}{8}$ of what number? 20. $\frac{1}{8}$ of $8 = ?$

10. 8 is $\frac{1}{8}$ of what number? 21. $\frac{1}{8}$ of $72 = ?$

11. 9 is $\frac{1}{8}$ of what number? 22. $\frac{1}{8}$ of $40 = ?$

12. 10 is $\frac{1}{8}$ of what number?

83. 1. How many quarts are there in a peck?

2. A quart is what part of a peck?

3. How many quarts are there in 7 pecks?

4. How many quarts are there in 10 pecks?

5. How many pecks are there in 56 quarts?

6. How many pecks are there in 40 quarts?

7. 2 pecks and 3 quarts are how many quarts?

8. A half a peck is how many quarts?

9. 4 pecks and a half are how many quarts?

10. 6 pecks and a half are how many quarts?

11.   16 qts. = —— pks.   16.   80 qts. = —— pks.
12.   32 qts. = —— pks.   17.   64 qts. = —— pks.
13.   56 qts. = —— pks.   18.   40 qts. = —— pks.
14.   72 qts. = —— pks.   19.   24 qts. = —— pks.
15.   ·48 qts. = —— pks.
20.   4 pks. 2 qts. = —— qts.
21.   3 pks. 6 qts. = —— qts.
22.   2 pks. 5 qts. = —— qts.
23.   7 pks. 6 qts. = —— qts.
24.   8 pks. 7 qts. = —— qts.
25.   6 pks. 6 qts. = —— qts.

84. 1. Beginning with 8, say the multiples of 8 to 80.

2. What remainders may we have in dividing by 8?

Subtract from each of these numbers, the nearest multiple of 8 smaller than the number:

(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
28	33	10	13	43	11	47	21	62
42	15	76	58	19	38	14	31	71
67	46	35	29	66	45	75	70	23
12	69	49	77	36	17	20	51	53
79	74	57	41	78	26	30	61	63
37	25	39	34	18	68	50	22	54
73	59	44	65	27	9	60	52	55

12. $49 \div 8 = ?$ $17 \div 8 = ?$ $74 \div 8 = ?$
      $77 \div 8 = ?$ $79 \div 8 = ?$ $57 \div 8 = ?$
      $36 \div 8 = ?$ $9 \div 8 = ?$ $13 \div 8 = ?$

13. $41 \div 8 = ?$ $37 \div 8 = ?$ $39 \div 8 = ?$
     $78 \div 8 = ?$ $25 \div 8 = ?$ $34 \div 8 = ?$
     $26 \div 8 = ?$ $28 \div 8 = ?$ $10 \div 8 = ?$

14. $18 \div 8 = ?$ $59 \div 8 = ?$ $65 \div 8 = ?$
     $68 \div 8 = ?$ $44 \div 8 = ?$ $27 \div 8 = ?$
     $73 \div 8 = ?$ $33 \div 8 = ?$ $11 \div 8 = ?$

15. $42 \div 8 = ?$ $58 \div 8 = ?$ $38 \div 8 = ?$
     $15 \div 8 = ?$ $19 \div 8 = ?$ $67 \div 8 = ?$
     $76 \div 8 = ?$ $47 \div 8 = ?$ $43 \div 8 = ?$

16. $46 \div 8 = ?$ $66 \div 8 = ?$ $12 \div 8 = ?$
     $35 \div 8 = ?$ $45 \div 8 = ?$ $69 \div 8 = ?$
     $29 \div 8 = ?$ $14 \div 8 \div ?$ $75 \div 8 = ?$

17. $70 \div 8 = ?$ $51 \div 8 = ?$ $30 \div 8 = ?$
     $50 \div 8 = ?$ $53 \div 8 = ?$ $60 \div 8 = ?$
     $20 \div 8 = ?$ $21 \div 8 = ?$ $71 \div 8 = ?$

18. $63 \div 8 = ?$ $54 \div 8 = ?$ $61 \div 8 = ?$
     $23 \div 8 = ?$ $52 \div 8 = ?$ $55 \div 8 = ?$
     $22 \div 8 = ?$ $62 \div 8 = ?$ $31 \div 8 = ?$

19. 51 qts. = —— pks. —— qts.
20. 23 qts. = —— pks. —— qts.
21. 63 qts. = —— pks. —— qts.
22. 71 qts. = —— pks. —— qts.
23. 31 qts. = —— pks. —— qts.
24. 60 qts. = —— pks. —— qts.
25. 54 qts. = —— pks. —— qts.

NINES.

85. 1. Add 9's to 90.

2. $2 \times 9 = ?$	8. $8 \times 9 = ?$	14. $54 \div 9 = ?$
3. $4 \times 9 = ?$	9. $10 \times 9 = ?$	15. $45 \div 9 = ?$
4. $3 \times 9 = ?$	10. $9 \times 9 = ?$	16. $63 \div 9 = ?$
5. $5 \times 9 = ?$	11. $18 \div 9 = ?$	17. $81 \div 9 = ?$
6. $7 \times 9 = ?$	12. $36 \div 9 = ?$	18. $72 \div 9 = ?$
7. $6 \times 9 = ?$	13. $27 \div 9 = ?$	19. $90 \div 9 = ?$

20. 9 is what part of 18? 29. 9 is $\frac{1}{2}$ of what number?
21. 9 is what part of 27? 30. 9 is $\frac{1}{5}$ of what number?
22. 9 is what part of 36? 31. 9 is $\frac{1}{10}$ of what number?
23. 9 is what part of 45? 32. 9 is $\frac{1}{6}$ of what number?
24. 9 is what part of 54? 33. 9 is $\frac{1}{3}$ of what number?
25. 9 is what part of 63? 34. 9 is $\frac{1}{7}$ of what number?
26. 9 is what part of 72? 35. 9 is $\frac{1}{9}$ of what number?
27. 9 is what part of 81? 36. 9 is $\frac{1}{4}$ of what number?
28. 9 is what part of 90? 37. 9 is $\frac{1}{8}$ of what number?

86. 1. $9 \times 1 = ?$ $9 \times 5 = ?$
    $9 \times 2 = ?$ $9 \times 6 = ?$
    $9 \times 3 = ?$ $9 \times 7 = ?$
    $9 \times 4 = ?$ $9 \times 8 = ?$

2. $9 \times 9 = ?$ $9 \times 10 = ?$ 6. 4 is $\frac{1}{9}$ of what number?
3. 1 is $\frac{1}{9}$ of what number? 7. 5 is $\frac{1}{9}$ of what number?
4. 2 is $\frac{1}{9}$ of what number? 8. 6 is $\frac{1}{9}$ of what number?
5. 3 is $\frac{1}{9}$ of what number? 9. 7 is $\frac{1}{9}$ of what number?

10.   8 is $\frac{1}{9}$ of what number?   12.   10 is $\frac{1}{9}$ of what number?
11.   9 is $\frac{1}{9}$ of what number?
13. $\frac{1}{9}$ of 36 = ?   17. $\frac{1}{9}$ of 45 = ?   20. $\frac{1}{9}$ of 9 = ?
14. $\frac{1}{9}$ of 18 = ?   18. $\frac{1}{9}$ of 81 = ?   21. $\frac{1}{9}$ of 54 = ?
15. $\frac{1}{9}$ of 63 = ?   19. $\frac{1}{9}$ of 27 = ?   22. $\frac{1}{9}$ of 72 = ?
16. $\frac{1}{9}$ of 90 = ?

87. 1. What is the area of a rectangle which is 10 inches long and 9 inches wide?

2. What is the area of a rectangle which is 9 inches long and 9 inches wide?

3. If a quart of these nuts cost 9 cents, what is the cost of a peck?

4. If the area of a rectangle is 63 square inches, how many rectangles, each containing 9 square inches, is it equal to?

5. If a pint of pickles cost 9 cents, what is the cost of a quart?

6. If a foot of moulding cost 9 cents, what is the cost of a yard?

7. If a quart of milk cost 9 cents, what is the cost of a gallon?

8. How many 9-dollar chairs can be bought for 81 dollars?

9. If a peck of bran cost 9 cents, what is the cost of a bushel?

10. If 5 men can do a piece of work in 9 days, how long will it take one man to do it?

11. In a schoolroom are 6 rows of desks, and 9 desks are in each row; how many desks are in the room?

12. A boarding house takes 9 quarts of milk a day; how many quarts is that a week?

13. At 9 dollars each, how many tables can be bought for 27 dollars?

14. 90 boys are marching 9 in a row; how many rows are there?

15. A lady can work 9 buttonholes an hour; how many hours will it take her to work 54 buttonholes?

16. If a boy can ride 9 miles an hour on his bicycle, how many hours will it take him to ride 36 miles?

17. If a schoolroom seat 72 pupils, and there are 9 seats in each row, how many rows are there?

18. If 90 pencils are done up in bundles, 9 pencils in each bundle, how many bundles are there?

19. How many 9-cent tops can be bought for 45 cents?

20. How many 9-inch sticks can be cut from an 18-inch stick?

88. 1. Beginning with 9, say the multiples of 9 to 90.

2. What remainders may we have in dividing by 9?

Subtract from each of these numbers the nearest multiple of 9 smaller than the number:

(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
48	11	69	86	89	13	70	20	52
79	68	38	28	65	19	62	30	43
87	56	85	59	16	47	53	26	25
55	46	73	64	78	88	44	51	80
37	84	12	17	83	50	35	21	71
66	14	67	74	10	33	23	34	22
29	77	49	15	39	61	40	60	41
75	58	76	82	57	24	32	42	31

12. $57 \div 9 = ?$ $76 \div 9 = ?$ $39 \div 9 = ?$ $15 \div 9 = ?$
    $82 \div 9 = ?$ $58 \div 9 = ?$ $49 \div 9 = ?$ $77 \div 9 = ?$

13. $75 \div 9 = ?$ $10 \div 9 = ?$ $67 \div 9 = ?$ $66 \div 9 = ?$
    $29 \div 9 = ?$ $74 \div 9 = ?$ $14 \div 9 = ?$ $83 \div 9 = ?$

14. $17 \div 9 = ?$ $84 \div 9 = ?$ $88 \div 9 = ?$ $64 \div 9 = ?$
    $12 \div 9 = ?$ $37 \div 9 = ?$ $78 \div 9 = ?$ $73 \div 9 = ?$

15. $46 \div 9 = ?$ $47 \div 9 = ?$ $59 \div 9 = ?$ $56 \div 9 = ?$
    $55 \div 9 = ?$ $16 \div 9 = ?$ $85 \div 9 = ?$ $87 \div 9 = ?$

16. $19 \div 9 = ?$ $28 \div 9 = ?$ $68 \div 9 = ?$ $13 \div 9 = ?$
    $65 \div 9 = ?$ $38 \div 9 = ?$ $79 \div 9 = ?$ $89 \div 9 = ?$

17. $86 \div 9 = ?$ $11 \div 9 = ?$ $31 \div 9 = ?$ $32 \div 9 = ?$
    $69 \div 9 = ?$ $48 \div 9 = ?$ $42 \div 9 = ?$ $24 \div 9 = ?$

18. $41 \div 9 = ?$ $40 \div 9 = ?$ $22 \div 9 = ?$ $23 \div 9 = ?$
    $60 \div 9 = ?$ $61 \div 9 = ?$ $34 \div 9 = ?$ $33 \div 9 = ?$

19. $71 \div 9 = ?$ $35 \div 9 = ?$ $80 \div 9 = ?$ $44 \div 9 = ?$
    $21 \div 9 = ?$ $50 \div 9 = ?$ $51 \div 9 = ?$ $25 \div 9 = ?$

20. $26 \div 9 = ?$ $43 \div 9 = ?$ $62 \div 9 = ?$ $20 \div 9 = ?$
    $53 \div 9 = ?$ $30 \div 9 = ?$ $52 \div 9 = ?$ $70 \div 9 = ?$

89. Review.

1. $6 \times 4 = ?$ $5 \times 5 = ?$ $9 \times 8 = ?$
     $8 \times 6 = ?$ $8 \times 7 = ?$ $10 \times 9 = ?$
     $4 \times 2 = ?$ $4 \times 3 = ?$ $7 \times 7 = ?$

2. $5 \times 3 = ?$ $6 \times 6 = ?$ $8 \times 3 = ?$
     $8 \times 5 = ?$ $7 \times 2 = ?$ $5 \times 2 = ?$
     $9 \times 4 = ?$ $9 \times 9 = ?$ $10 \times 5 = ?$

3. $10 \times 2 = ?$ $7 \times 3 = ?$ $4 \times 4 = ?$
     $8 \times 4 = ?$ $9 \times 6 = ?$ $7 \times 5 = ?$
     $2 \times 2 = ?$ $10 \times 3 = ?$ $8 \times 2 = ?$

4. $6 \times 3 = ?$ $9 \times 7 = ?$ $3 \times 2 = ?$
     $10 \times 6 = ?$ $5 \times 4 = ?$ $10 \times 10 = ?$
     $3 \times 3 = ?$ $9 \times 2 = ?$ $7 \times 4 = ?$

5. $7 \times 6 = ?$ $6 \times 5 = ?$ $10 \times 4 = ?$
     $10 \times 7 = ?$ $9 \times 3 = ?$ $9 \times 5 = ?$
     $8 \times 8 = ?$ $6 \times 2 = ?$ $10 \times 8 = ?$

6. $2 \times 9 = ?$ $6 \times 7 = ?$ $3 \times 10 = ?$

    $4 \times 6 = ?$ $3 \times 4 = ?$ $4 \times 9 = ?$

    $7 \times 10 = ?$ $5 \times 6 = ?$ $2 \times 3 = ?$

7. $5 \times 7 = ?$ $6 \times 8 = ?$ $3 \times 8 = ?$

    $2 \times 6 = ?$ $5 \times 9 = ?$ $4 \times 7 = ?$

    $3 \times 5 = ?$ $9 \times 10 = ?$ $2 \times 10 = ?$

8. $4 \times 5 = ?$ $3 \times 6 = ?$ $2 \times 7 = ?$

    $7 \times 9 = ?$ $5 \times 8 = ?$ $6 \times 10 = ?$

    $2 \times 4 = ?$ $8 \times 10 = ?$ $3 \times 9 = ?$

9. $4 \times 10 = ?$ $2 \times 8 = ?$ $6 \times 9 = ?$

    $8 \times 9 = ?$ $5 \times 10 = ?$ $2 \times 5 = ?$

    $3 \times 7 = ?$ $7 \times 8 = ?$ $4 \times 8 = ?$

10. $100 \div 10 = ?$ $18 \div 3 = ?$ $4 \div 2 = ?$

    $70 \div 7 = ?$ $20 \div 2 = ?$ $36 \div 4 = ?$

    $16 \div 4 = ?$ $25 \div 5 = ?$ $48 \div 6 = ?$

11. $64 \div 8 = ?$ $18 \div 2 = ?$ $28 \div 4 = ?$

    $60 \div 6 = ?$ $6 \div 2 = ?$ $40 \div 5 = ?$

    $9 \div 3 = ?$ $27 \div 3 = ?$ $56 \div 7 = ?$

12. $24 \div 4 = ?$ $49 \div 7 = ?$ $40 \div 4 = ?$

    $72 \div 8 = ?$ $14 \div 2 = ?$ $54 \div 6 = ?$

    $50 \div 5 = ?$ $15 \div 3 = ?$ $45 \div 5 = ?$

13. $30 \div 5 = ?$ $12 \div 3 = ?$ $90 \div 9 = ?$

    $81 \div 9 = ?$ $16 \div 2 = ?$ $36 \div 6 = ?$

    $20 \div 4 = ?$ $10 \div 2 = ?$ $30 \div 3 = ?$

14. $63 \div 7 = ?$ $21 \div 3 = ?$ $8 \div 2 = ?$
     $32 \div 4 = ?$ $12 \div 2 = ?$ $35 \div 5 = ?$
     $42 \div 6 = ?$ $80 \div 8 = ?$ $24 \div 3 = ?$

15. $6 \div 3 = ?$ $42 \div 7 = ?$ $32 \div 8 = ?$
     $30 \div 6 = ?$ $20 \div 10 = ?$ $72 \div 9 = ?$
     $90 \div 10 = ?$ $18 \div 9 = ?$ $14 \div 7 = ?$

16. $24 \div 8 = ?$ $30 \div 10 = ?$ $45 \div 9 = ?$
     $35 \div 7 = ?$ $56 \div 8 = ?$ $12 \div 4 = ?$
     $27 \div 9 = ?$ $60 \div 10 = ?$ $20 \div 5 = ?$

17. $8 \div 4 = ?$ $40 \div 10 = ?$ $16 \div 8 = ?$
     $24 \div 6 = ?$ $28 \div 7 = ?$ $70 \div 10 = ?$
     $48 \div 8 = ?$ $63 \div 9 = ?$ $12 \div 6 = ?$

18. $15 \div 5 = ?$ $54 \div 9 = ?$ $21 \div 7 = ?$
     $36 \div 9 = ?$ $18 \div 6 = ?$ $80 \div 10 = ?$
     $40 \div 8 = ?$ $50 \div 10 = ?$ $10 \div 5 = ?$

WRITTEN MULTIPLICATION.

90. 1. Add:

19	16	18	17	11	14	15	12
19	16	18	17	11	14	15	12
	16	18	17	11	14	15	12
		18	17	11	14	15	12
			17	11	14	15	12
				11	14	15	12
				11	14		12
				11			12
				11			

9

2. How many are 2 × 19?

3. How many are 4 × 18?

4. How many are 9 × 11?

5. Finding the sum of two or more equal numbers is called what?

6. How did you find those sums?

The shorter process:

19   2 times 9 ones are 18 ones; 2 times 1 ten are 2 tens and
× 2   1 ten are 3 tens.   Answer 38.

38

16   Recite: 3 times 6 are 18; 3 times 1 are 3 and 1 are 4.
× 3   Answer 48.

48

[NOTE: It is only necessary that the pupils see the meaning of the tens and ones. It is not necessary to multiply words in doing the examples.]

7. Multiply in that manner:

18	17	11	14	15	12
× 4	× 5	× 9	× 7	× 6	× 8

8. 24	18	47	36	45	39
× 2	× 2	× 2	× 2	× 2	× 2

9. 32	29	17	24	15	26	18
× 3	× 3	× 3	× 3	× 3	× 3	× 3

10. 25	21	18	16	22	14	19	23
× 4	× 4	× 4	× 4	× 4	× 4	× 4	× 4

11. 19   11   13   18   16   14   17   12   15
     × 5   × 5   × 5   × 5   × 5   × 5   × 5   × 5   × 5

12. 16   12   13   15   11   14
     × 6   × 6   × 6   × 6   × 6   × 6

13. 11   13   12   14   12   11   11
     × 7   × 7   × 7   × 7   × 8   × 8   × 9
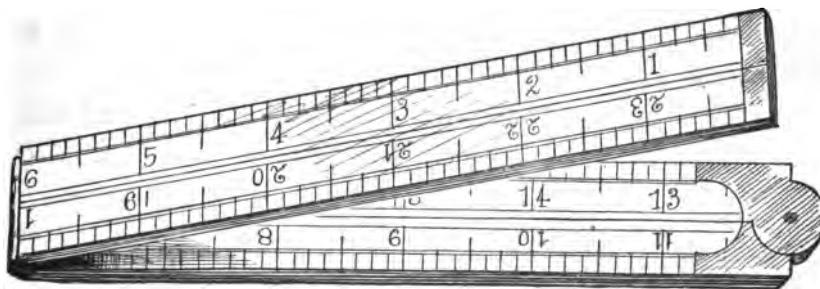
Draw a line a foot long.   Divide it into inches.

14. How many inches are there in a foot?

15. Find out by multiplication how many inches there are in 5 feet; in 6 feet; in 8 feet; in a yard.

16. How many things make a dozen?

17. Find out by multiplication how many things there are in 4 dozen; 7 dozen; 2 dozen; 6 dozen.

18. We buy some things by *weight*.   What measures of weight do we have?

19. Which is heavier an ounce or a pound?

20.   How many ounces does it take to weigh a pound ?

21. Find out by multiplication how many ounces there are in 2 pounds; in 4 pounds; in 6 pounds; in 5 pounds; in 3 pounds.

SHORT DIVISION.

91. 1. Finding how many times one number is contained in another is called what ?

2. How many numbers are written with only one figure ?

Finding how many times those numbers are contained in numbers larger than the multiple obtained by multiplying the number by 10 is called SHORT DIVISION.

2) 23   Process: 2 ones are contained in 2 tens 1
　11, 1 rem.   ten times ; 2 ones are contained in 3 ones once and 1 remainder.   Answer 11 times and 1 remainder.

Recite: 2 in 2 once ; 2 in 3 once and 1 remainder.   Answer 11 and 1 remainder.

Divide in that manner :

3.   2) 24   2) 29   2) 27   2) 26   2) 25

4.   3) 32   3) 35   3) 37   3) 34   3) 39

5.   4) 41   4) 45   4) 47   4) 49   4) 48

6.   5) 52   5) 56   5) 59   5) 54   5) 58

7.   6) 63   6) 64   6) 66   6) 69   6) 68

8.   7) 73   7) 75   7) 78   7) 77   7) 79

9. 8) 84   8) 86   8) 89   8) 87   8) 88

10. 9) 96   9) 97   9) 99   9) 95   9) 92

2) 53   2 ones are contained in 5 tens, 2 ten times
    26,1 rem.   and 1 ten remainder; 2 ones are contained in
13 ones 6 times and 1 remainder.   Answer 26 and 1 remainder.

Recite: 2 in 5, twice and 1 remainder; 2 in 13, 6 times and 1 remainder.
Answer 26 and 1 remainder.

Divide these examples in that manner:

11. 2) 55   2) 73   2) 37   2) 96   2) 93

12. 3) 41   3) 49   3) 56   3) 75   3) 98

13. 4) 58   4) 69   4) 73   4) 89   4) 97

14. 5) 68   5) 63   5) 79   5) 84   5) 99

15. 6) 79   6) 74   6) 83   6) 91   6) 96

16. 7) 81   7) 87   7) 92   7) 95   7) 99

17. 8) 91   8) 93   8) 95   8) 98   8) 99

18. 2) 75   3) 64   3) 85   4) 82   4) 93

19. 5) 61   6) 87   7) 89   8) 93   9) 98

20. 2) 57   3) 89   4) 99   5) 91   6) 89

92. 1. How many quarts are in 24 pints?

2. How many yards are 43 feet?

3. How many gallons are 76 quarts?

4. How many 5-cent pieces equal 65 cents?

5. How many weeks is 98 days?

6. How many pecks is 96 quarts?

7. How do you find how many 2's there are in a number? 4's? 3's? 8's? 9's?

To find $\frac{1}{2}$ of a number divide by 2; to find $\frac{1}{3}$ of a number, divide by 3; etc.

8. Find: $\frac{1}{2}$ of 36 $\frac{1}{3}$ of 42 $\frac{1}{4}$ of 56

$\frac{1}{2}$ of 84 $\frac{1}{3}$ of 75 $\frac{1}{4}$ of 68

$\frac{1}{2}$ of 96 $\frac{1}{3}$ of 84 $\frac{1}{4}$ of 96

9. Find: $\frac{1}{5}$ of 65 $\frac{1}{6}$ of 72 $\frac{1}{7}$ of 84

$\frac{1}{5}$ of 80 $\frac{1}{6}$ of 96 $\frac{1}{8}$ of 96

$\frac{1}{5}$ of 95 $\frac{1}{6}$ of 84 $\frac{1}{9}$ of 99

10. At 60 cents a pound what is the cost of half a pound of tea?

11. If 7 tables are worth 91 dollars, what is 1 worth?

12. At 84 cents a bushel, what is the cost of a peck of potatoes?

13. If 1 man could do a piece of work in 36 days, how long would it take 3 men to do it?

14. At 96 cents a peck, what is the cost of a quart of beans?

15. What is the cost of a quarter of a pound of candy at 80 cents a pound?

SECTION XX.

MISCELLANEOUS EXERCISES.

ORAL EXERCISE.

93. 1. A man rode 9 miles and walked 8; how far did he travel?

2. George paid 9 cents for a book and 4 cents for a pencil; how many cents did he spend?

3. John is 14 years old and Henry is 7 years old; how much older is John than Henry?

4. Fred had 18 newspapers and sold 9; how many had he left?

5. Carrie is 12 years old and Mary is 9; what is the difference in their ages?

6. A man sold 8 books from a shelf containing 16; how many books were left on the shelf?

7. A week and 5 days are how many days?

8. Willie is 4 years old; how old will he be in 8 years?

9. A man cut a stick 9 feet long from one which was 16 feet long; how long was the piece which was left?

10. A boy had 9 books and bought 7 more; how many books had he then?

11. George is 6 years old and Henry is 7 years older; how old is Henry?

12. Lucy has 13 books and Jessie has 5; how many more books has Lucy than Jessie?

13. In a class are 8 boys and 6 girls; how many children are in the class?

14. In a vase are 9 red roses and 6 white ones; how many roses are in the vase?

15. In a vase are 11 red roses and 3 white ones; how many more red ones than white ones are there?

16. A pole is 15 feet long and another is 6 feet long; what is the difference in their lengths?

17. A man spent 8 dollars for a table and 5 dollars for a chair; what did he pay for both?

18. A table cost 13 dollars and a chair cost 9 dollars; how much more did the table cost than the chair?

19. Jennie had 11 pinks and gave away 6; how many had she left?

20. There are 8 books on one table and 7 on another; how many books are on both tables?

21. There are 14 books on one table and 5 on another; how many more books are on the first table than on the second?

22. George started to travel 12 miles; when he had gone 6 miles, how far had he still to go?

23. Carrie is 9 years old; how old will she be in 5 years?

24. Jessie has 17 cents and Ida has 9 cents; how many more has Jessie than Ida?

25. A man had 15 sheep and sold 8 of them; how many sheep had he left?

DRILL EXERCISES.

94. Add, putting any figure from 1 to 9 in place of *:

1	3	4	2	5	6	4	1	3
*4	*1	*5	*6	*1	*3	*2	*8	*3

1	4	5	4	5	1	4	1	2
*3	*3	*4	*1	*3	*6	*4	*1	*3

6	2	8	5	1	2	7	6	2
*1	*5	*1	*2	*7	*4	*2	*2	*7

7	2	3	1	3	3	3	1	2
*1	*2	*6	*2	*2	*4	*5	*5	*1

Subtract, putting any figure from 1 to 9 in place of * :

*8	*7	*5	*3	*8	*6	*9	*8	*7
5	3	2	2	2	4	7	7	6

*5	*8	*9	*7	*5	*9	*8	*6	*4
1	3	4	1	3	3	6	1	1

*4	*6	*7	*9	*9	*7	*8	*2	*4
2	2	2	8	1	5	4	1	3

*7	*6	*9	*9	*8	*5	*6	*9	*3
4	3	2	5	1	4	5	6	1

Add, putting any figure from 1 to 8 in place of *.

8	8	5	8	6	6	6	4	8
*7	*6	*8	*3	*4	*7	*9	*8	*8

9	5	8	3	4	5	9	2	9
*2	*9	*2	*9	*7	*5	*5	*8	*7

7	9	9	6	4	6	3	6	8
*5	*1	*3	*5	*9	*8	*7	*6	* 9

9	8	3	7	5	8	5	9	9
*4	*4	*8	*3	*7	*5	*6	*8	*9

9	7	7	7	2	4	7	7	1
*6	*8	*6	*7	*9	*6	*4	*9	*9

Subtract, putting any figure from 1 to 9 in place of *:

*0	*2	*0	*2	*0	*2	*0	*4	*1
2	8	9	7	5	3	8	7	6

*6	*1	*3	*1	*1	*4	*0	*2	*6
7	2	8	7	9	8	4	6	8

*4	*2	*0	*2	*3	*1	*5	*1	*0
6	5	1	9	6	5	8	4	6

*8	*5	*3	*0	*6	*7	*3	*2	*1
9	7	9	3	9	8	7	4	8

*5	*3	*0	*5	*1	*7	*4	*4	*3
6	4	7	9	3	9	5	9	5

Add these examples from the bottom upward, adding first as they stand, then putting any figure from 1 to 7 in place of ∗ :

9	9	7	2	9	8	8	7	8
1	2	1	6	2	1	3	3	3
3	2	9	4	6	5	9	6	4
5	3	6	9	2	8	5	4	5
∗3	∗7	∗3	∗1	∗5	∗1	∗1	∗2	∗4

4	4	5	6	6	5	6	5	9
1	7	3	4	4	1	4	4	4
8	2	6	5	7	6	7	6	9
3	3	7	2	1	1	4	6	1
∗5	∗6	∗3	∗4	∗5	∗8	∗5	∗2	∗2

6	7	9	8	8	7	7	7	3
2	5	6	1	3	3	5	1	2
7	8	8	5	9	7	1	8	9
1	3	3	1	3	2	6	2	6
∗6	∗4	∗1	∗7	∗2	∗2	∗4	∗7	∗1

3	8	9	9	5	5	7	2	6
8	2	2	8	3	2	6	6	5
7	9	4	8	7	5	9	8	3
2	4	5	2	1	8	1	1	2
∗3	∗4	∗2	∗1	∗9	∗2	∗1	∗4	∗8

8	1	6	3	8	9	4	4	9
1	9	5	4	1	5	2	7	7
9	6	8	7	5	4	8	3	9
4	4	3	7	4	2	5	7	1
*6	*1	*3	*1	*3	*6	*5	*2	*3

[NOTE: No new matter is presented in these drill exercises. They all appear in the same or different form elsewhere in the book, and are collected here for convenience.]

95. 1.   ? pts. = 1 qt.
                ? qts. = 1 gal.

2. A pint is what part of a quart?

3. A quart is what part of a gallon?

4. If a pint of milk cost 5 cents, what is the cost of a quart?

5. If a quart of molasses cost 14 cents, what is the cost of a pint?

6. 4 quarts are how many pints?

7. 8 quarts are how many gallons? how many pints?

8. 12 quarts are how many gallons?

9. 12 pints are how many quarts? 8 pints? 16 pints? 20 pints?

10. 5 quarts are how many pints? 8 quarts? 6 quarts? 9 quarts?

11. 7 gallons are how many quarts? 9 gallons? 6 gallons? 8 gallons?

12. 16 quarts are how many gallons? 36 quarts? 28 quarts? 20 quarts?

13. At 6 cents a quart, what is the price of a gallon of milk ?

14. At 16 cents a gallon, what is the price of a quart of oil ?

15. ? in. = 1 ft.

? ft. = 1 yd.

16. 7 yards are how many feet ? 9 yards ? 6 yards ?

17. 30 feet are how many yards ? 24 feet ? 18 feet ? 27 feet ?

18. A foot is what part of a yard ?

19. ? pt. = 1 qt.

? qt. = 1 pk.

? pk. = 1 bu.

20. A quart is what part of a peck ?

21. A peck is what part of a bushel ?

22. 8 bushels are how many pecks ? 5 bushels ? 4 bushels ?

23. 24 pecks are how many bushels ? 32 pecks ? 40 pecks ?

24. 6 pecks are how many quarts ? 9 pecks ? 3 pecks ? 8 pecks ? 5 pecks ? 7 pecks ? 2 pecks ? 4 pecks ?

25. 24 quarts are how many pecks ? 56 quarts ? 32 quarts ? 40 quarts ? 64 quarts ? 16 quarts ? 48 quarts ? 72 quarts ?

96. 1. How many days are there in a week ?

2. A day is what part of a week ?

3. 7 weeks are how many days ? 9 weeks ? 3 weeks ? 6 weeks ? 8 weeks ? 4 weeks ? 2 weeks ? 5 weeks ?

4. 49 days are how many weeks ? 21 days ? 35 days ? 56 days ? 70 days ? 28 days ? 14 days ? 42 days ? 63 days ?

5. If $\frac{1}{7}$ of John's money is 9 cents, how much money has he?

6. If $\frac{1}{4}$ of a pound of cheese cost 6 cents, what is the cost of a pound?

7. If a pound of candy cost 36 cents, what is the cost of $\frac{1}{4}$ of a pound?

8. If a boy rode 18 miles on his bicycle in 3 hours, how far did he ride in 1 hour at the same rate?

9. If 6 chairs are worth 42 dollars, what is the cost of each one?

10. At 9 cents each, what is the cost of 9 slates?

11. If Annie has 54 cents and Carrie has $\frac{1}{9}$ as many, how many has Carrie?

12. If 45 persons can be seated on 9 benches, how many people can be seated on 1 bench?

13. If 5 persons can be seated on each bench, how many benches are needed to seat 30 persons?

14. George had 72 cents and spent $\frac{1}{9}$ of it for ink; how much did the ink cost?

15. Henry travelled 45 miles; he walked $\frac{1}{9}$ of the distance and rode the rest. How far did he walk?

97. DRILL EXERCISES.

A	B	C	D	E	F	G	H	I	J
4	13	21	33	44	51	63	72	81	93
8	16	27	36	43	57	66	75	87	98
2	12	22	31	42	53	69	77	83	92
9	17	29	39	41	59	61	71	86	97
7	14	26	32	47	56	65	73	84	91
1	19	23	38	49	52	62	79	88	99
6	11	28	34	46	58	68	74	82	96
10	15	25	37	50	54	64	76	85	94
3	18	30	40	48	55	67	78	89	95
5	20	24	35	45	60	70	80	90	100

a	b	c	d	e	f	g	h	i
10	9	16	25	18	28	56	27	40
4	3	24	35	36	42	80	63	80
6	12	40	20	48	7	32	45	90
12	21	32	15	12	56	8	90	20
8	27	4	40	60	35	40	18	70
18	30	12	30	24	14	64	72	10
20	24	8	45	42	63	24	36	60
16	18	28	10	30	21	48	54	30
2	6	20	50	54	49	72	81	50
14	15	36	5	6	70	16	9	100

A × 2	A × 5	A × 8
a ÷ 2	d ÷ 5	g ÷ 8
2 is ⊥ of a	5 is ⊥ of d	8 is ⊥ of g
2 × A	5 × A	8 × A
½ of a	⅕ of d	⅛ of g
A, B ÷ 2	A to E ÷ 5	A to H ÷ 8
A ÷ 3	A × 6	A × 9
b ÷ 3	e ÷ 6	h ÷ 9
3 is ⊥ of b	6 is ⊥ of e	9 is ⊥ of h
3 × A	6 × A	9 × A
⅓ of b	⅙ of e	⅑ of h
A, B, C ÷ 3	A to F ÷ 6	A to I ÷ 9
A × 4	A × 7	A × 10
c ÷ 4	f ÷ 7	i ÷ 10
4 is ⊥ of c	7 is ⊥ of f	10 is ⊥ of i
4 × A	7 × A	10 × A
¼ of c	⅐ of f	$\frac{1}{10}$ of i
A to D ÷ 4	A to G ÷ 7	A to J ÷ 10

(In exercise " ✶ is ⊥ of —," omit the equal number; *e. g.*, 2 is ⊥ of *2*.)

Read and write, putting any figure from 1 to 9 in place of ✶:

✶ is ½ of what number?	✶ is ⅐ of what number?
✶ is ⅓ of what number?	✶ is ⅛ of what number?
✶ is ¼ of what number?	✶ is ⅑ of what number?
✶ is ⅕ of what number?	✶ is $\frac{1}{10}$ of what number?
✶ is ⅙ of what number?	

Divisions needing special practice.

$20 \div 6 = ?$	$31 \div 4 = ?$	$43 \div 9 = ?$	$54 \div 7 = ?$
$20 \div 7 = ?$	$31 \div 7 = ?$	$44 \div 9 = ?$	$54 \div 8 = ?$
$20 \div 8 = ?$	$31 \div 8 = ?$	$50 \div 6 = ?$	$55 \div 7 = ?$
$20 \div 9 = ?$	$31 \div 9 = ?$	$50 \div 7 = ?$	$55 \div 8 = ?$
$21 \div 6 = ?$	$32 \div 7 = ?$	$50 \div 8 = ?$	$60 \div 7 = ?$
$21 \div 8 = ?$	$32 \div 9 = ?$	$50 \div 9 = ?$	$60 \div 8 = ?$
$21 \div 9 = ?$	$33 \div 7 = ?$	$51 \div 6 = ?$	$60 \div 9 = ?$
$22 \div 6 = ?$	$33 \div 9 = ?$	$51 \div 7 = ?$	$61 \div 7 = ?$
$22 \div 8 = ?$	$34 \div 7 = ?$	$51 \div 8 = ?$	$61 \div 8 = ?$
$22 \div 9 = ?$	$34 \div 9 = ?$	$51 \div 9 = ?$	$61 \div 9 = ?$
$23 \div 6 = ?$	$35 \div 9 = ?$	$52 \div 6 = ?$	$62 \div 7 = ?$
$23 \div 8 = ?$	$40 \div 6 = ?$	$52 \div 7 = ?$	$62 \div 8 = ?$
$23 \div 9 = ?$	$40 \div 7 = ?$	$52 \div 8 = ?$	$62 \div 9 = ?$
$24 \div 9 = ?$	$40 \div 9 = ?$	$52 \div 9 = ?$	$63 \div 8 = ?$
$25 \div 9 = ?$	$41 \div 6 = ?$	$53 \div 6 = ?$	$70 \div 8 = ?$
$26 \div 9 = ?$	$41 \div 7 = ?$	$53 \div 7 = ?$	$70 \div 9 = ?$
$30 \div 4 = ?$	$41 \div 9 = ?$	$53 \div 8 = ?$	$71 \div 8 = ?$
$30 \div 8 = ?$	$42 \div 9 = ?$	$53 \div 9 = ?$	$71 \div 9 = ?$
$30 \div 9 = ?$			

WRITTEN EXERCISES.

98. 1. A man has 18 sheep, 14 cows, 15 pigs, and 14 horses; how many animals has he?

2. A lady is 39 years old; in how many years will she be 53 years old?

3. A man cut 16 yards of cloth from a piece containing 35 yards; how long was the piece which was left?

10
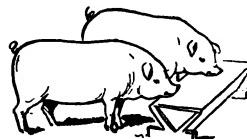
4. Henry has 46 books and John has twice as many; how many books has John?

5. A table cost 18 dollars and a sofa cost 5 times as much; what did the sofa cost?

6. In one class there are 15 children, in another 19, in another 18, and in another 21; how many children are in the four classes?

7. How many weeks are there in 84 days?

8. A boy had 96 cents and spent $\frac{1}{4}$ of it; how much did he spend?

9. Add:

38	29	19	17
25	16	14	35
16	17	17	16
13	32	31	22

10. Subtract:

53	84	97	81
25	19	49	33

11. Multiply:

23	11	14	29
4	9	6	3

12. Divide:

$2\,)\,93$ $5\,)\,83$ $6\,)\,87$ $3\,)\,89$

99. 1. If a bushel of potatoes cost 76 cents, what is the cost of a peck at the same rate?

2. A man bought a bookcase for 43 dollars and sold it for 14 dollars less than he paid for it; for what did he sell it?

3. A boy read 24 pages in one day, 19 pages another day, 35 pages another day, and 13 pages another day; how many pages did he read in all?

4. If a train goes 47 miles an hour, how far does it go in 2 hours?

5. At 11 cents a quart, what is the price of a peck of cranberries?

6. A man paid 38 dollars for a carpet, 18 dollars for chairs, 14 dollars for a table, and 24 dollars for a sofa; what did he pay for all?

7. One piece of cloth is 52 yards long, and another is 34 yards long; how much longer is the first part than the second?

8. At 6 dollars each, how many chairs can be bought for 80 dollars?

9. Add:

16	19	18	37
29	18	27	18
36	25	14	21
11	32	33	15

10. Subtract:

85	93	84	42
27	47	26	15

11.   Multiply:

18	16	13	12
3	5	6	7

12. Divide:

$$2 \overline{)79} \qquad 6 \overline{)92} \qquad 5 \overline{)98} \qquad 3 \overline{)56}$$

100. 1.   At 19 cents a quart, what is the cost of a gallon of molasses?
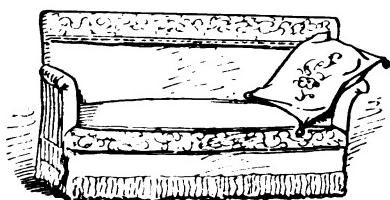
2. A man paid 74 dollars for a bookcase and $\frac{1}{3}$ as much for a sofa; what did the sofa cost?

3. If $\frac{1}{3}$ of my books is 33, how many books have I?

4. A boy travelled 18 miles on a bicycle one day, 16 miles the next day, 22 miles the next day, and 13 miles the next day; how far did he travel in all?

5. 87 feet is how many yards?

6. A storekeeper sold 36 bananas from a bunch containing 93; how many bananas were left on the bunch?

7. If a boy sold 29 papers one day, 17 the next day, 12 the next day, and 34 the next day, how many did he sell in the four days?

8. A lady is 86 years old and her sister is 67 years old; what is the difference in their ages?

9. Add :

38	19	19	19
26	37	28	37
13	14	31	22
13	21	13	12

10. Subtract :

65	71	66	74
29	35	28	37

11. Multiply :

15	11	33	19
6	7	3	5

12. Divide :

8) 90   3) 56   7) 89   9) 98

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